The Newspaper of Information Systems Management
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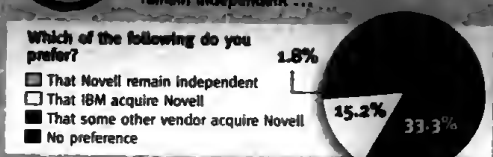
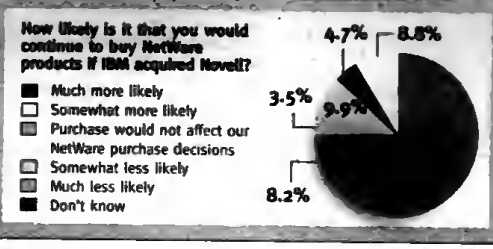
COMPUTERWORLD

Should IBM buy Novell?

With persistent rumors swirling that IBM may move to acquire Novell, *Computerworld* asked 171 Novell NetWare customers what they thought. While half of them would like to see their vendor remain independent . . .



. . . a whopping majority said IBM ownership would not affect their Novell product plans.



Net offensive

Novell strategy sets stage for NetWare, NT showdown

By Laura DiDio

In the next two weeks, Novell, Inc. will deliver what it hopes will be a one-two NetWare punch to slow down the accelerating impact of Microsoft Corp.'s Windows NT Server.

Novell executives will pit their premier network operating system against the Windows NT operating system this week at Unix Expo in New York. They will detail a strategy shift that refocuses the company's efforts on its core networking competency.

Novell has strayed from its NetWare foundation during the past two years with a series of non-networking acquisitions such as WordPerfect Corp. and Unix System Laboratories, Inc.

What users can expect to see is an accelerated shipment schedule for Novell's Gemini network operating system, formerly known as Super NOS. Also coming are long-overdue add-on software capabilities such as symmetrical multiprocessing and native TCP/IP support.

> "I like the new, refocused Novell, as well as everything I've heard so far about Gemini."
>
> *—Bernie Kuo, Chase Manhattan Bank, on the new network operating system*

Gemini is the next-generation operating system to the current NetWare 4.1. The forthcoming SMP and TCP/IP capabilities will work with both NetWare 4.1 and Gemini.

Gemini melds the best of NetWare 4.1 and its global directory services with UnixWare, Novell's own brand of the Unix operating system (see story, page 137).

Users briefed on Gemini said the system will initially allow them to choose between running in either native NetWare 4.1 or NetWare/Unix mode. Later, in late 1996 or early 1997, Novell plans to release a version with a common microkernel running NetWare and Unix simultaneously. That would eliminate the need to switch back and forth between the two network operating systems, users said.

"Novell is giving its installed base a choice of running native NetWare, which is very fast, or switching to NetWare/Unix, which is slower but will allow them to run all Unix applications."

Novell, *page 137*

DEC grabs back LinkWorks, drops outside developers

By Michael Goldberg and Suruchi Mohan

During the recent recasting of its software strategy, Digital Equipment Corp. quietly bounced the Austrian developers of its critically acclaimed LinkWorks object-oriented groupware, *Computerworld* has learned.

Fallmann and Bauernfieod, the firm that developed LinkWorks and contracted with Digital to improve it, was told "ooexpectedly and on very short ootice" to stop its developmeot work as of July 1, 1995, according to FABA's principals, Helmut Fallmann and Leo Bauernfiend.

Users contacted last week said they were caught off guard by the decision to end FABA's development work and were uncertain about the motives behind it.

Digital officials said their new

LinkWorks, *page 14*

In the eye of the storm

By Kim S. Nash

COMPUTERWORLD SPECIAL REPORT

Database support

When a critical client/server banking application or health insurance processing system goes down, frantic information systems managers don't call their networking equipment vendors for help. Nor do they yank chains at the companies that supplied the systems software.

No sir. It is the database vendor that is expected, like it or not, to fix the problem.

Users — especially those with large client/server systems — say they are pushing the likes of Informix Software, Inc., Oracle Corp. and Sybase, Inc. to become one-stop shops for technical service.

In fact, database makers are second only to in-house staff as the primary source of client/server technical support for users, according to an exclusive *Computerworld* survey of 100 database users (see chart).

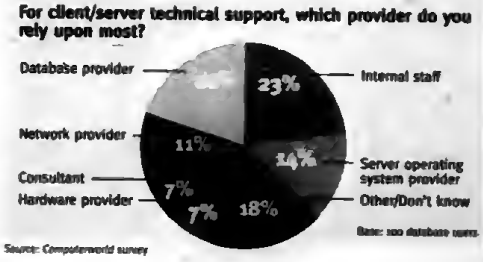
"They're being asked to [stand] in the eye of the storm," said Bob Johnson, an analyst at the Framingham, Mass., office of consultancy Dataquest, Inc.

Doing so successfully can pay off big.

Decent service is such a draw these days that New York financial firm Merrill Lynch & Co. recently bypassed Oracle to sign an estimated $10 million deal with Sybase that hinged, in part, on the vendor's vow of top-notch, customized support [CW, July 31].

And rival Informix actually added support staff to its Detroit office at the request of customer Domino's Pizza Distribution Corp.,

Eye of the storm, *page 28*



About that OS/2 review. . .

Our front-page review last week of Microsoft Corp.'s Windows 95 vs. IBM's OS/2 Warp has outraged OS/2 users. And rightly so. Editor in Chief Bill Laberis offers a mea culpa in his editorial on page 38. In next week's issue, *Computerworld* will run a full page of letters from OS/2 users. Later this fall, we will run a more balanced and accurate review.

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Inside Computerworld

Sept. 18, 1995

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IBM sources say the company's PowerPC unit will be merged into its mainstream Intel unit in a bid to jump-start PowerPC sales and give the effort new direction.

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HP will update its T500 server line, adding faster processors and giving users clustering capabilities, sources say.

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Powersoft releases a version of its popular PowerBuilder application development systems for a non-PC operating system.

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Computers present no panacea for those trying to fight money laundering; Congress investigates the FAA's traffic control system after yet another breakdown; and cybercops nab six hackers.

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ATM kingpin Fore Systems makes its first foray outside the ATM industry, introducing an innovative Ethernet switch that will help users gradually migrate to ATM networks.

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MCI gets a new chief information officer who plans to bring its internal information technologies and customer network closer together to improve service and efficiency.

MCI

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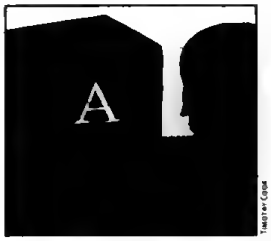
101 Statistics lie, money talks
Armed with results from *Computerworld*'s salary survey, Allan E. Alter takes a humorous look at IS-bashers and their "statistics."

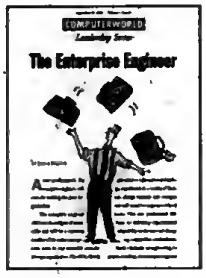
Choice Cuts

When a company embraces **kaizen**, *as Charles J. Knuth's Holley Automotive has,* **old IS habits go out the window. Management, page 95**



Only oppressive managers try to stop **employees from spending time on-line.** *What's next, the cyberpolice?* **In Depth, page 106**

About **70% of re-engineering falls short** *of its goals. James Martin offers a solution in this month's* **Leadership Series, following page 40**



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FedEx

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Systems management united for SAP, Unix

Maestro package synchronizes financial, IS processes

By Steve Moore

Unison Software, Inc. and SAP America, Inc. this week are expected to announce software that provides an unprecedented level of systems management coordination between SAP applications and Unix systems.

Sources said Unison will deliver a beta version of its Maestro job scheduling package this fall. It will manage both Unix and Microsoft Corp. Windows NT system workloads as well as SAP financial application workloads on an enterprisewide basis.

Maestro will let users synchronize business financial processes with underlying information systems processes. Analysts said synchronization — a first for coordination between SAP and Unix — will help ensure that needed computer hardware and software resources are available each time an accounting application must perform a critical, scheduled task.

For example, a company could set up an automated process whereby its account books aren't closed until sales data has been automatically uploaded from a remote database at a certain time.

Automated scheduling of SAP and Unix or NT events will likely yield significant administrative cost-savings because "you don't have to have people in front of terminals running jobs," said Paul Mason, a research manager at International Data Corp. in Framingham, Mass.

The Maestro release is the result of joint software development work by Santa Clara, Calif.-based Unison and IXOS Software, Inc. in Belmont, Calif., one of seven SAP worldwide technology partners. Analysts said Unison and Philadelphia-based SAP America are the leading vendors in their respective markets.

With Windows NT taking on some functions once handled exclusively by Unix systems [CW, Aug 21], "Users starting to do NT deployment will run into a problem with heterogeneous scheduling, and that is a problem this [SAP and Unison integration] solves," said Frank Dzubeck, president of Communications Network Architects, Inc in Washington.

Users said the scheduling improvements would help them simplify their job flows.

Building alliances

Unison this week plans to launch a worldwide Channel Partner Program to build relationships with hardware and software vendors, systems integrators and consultants. Key participants in the program include Hewlett-Packard Co. and Sequent Computer Systems, Inc.

PC Co. to pick up PowerPC unit

By Jaikumar Vijayan and Lisa Picarille

Look for IBM to fold its sputtering Power Personal Systems division into the IBM PC Co. by the first quarter of next year, according to sources at the company.

Some observers say the move is symbolic of IBM's troubled search for a long-term PowerPC desktop strategy. But IBM sources last week said the merger is nothing more than an attempt to streamline marketing and raise brand-image awareness of IBM's PowerPC-based systems.

The PowerPC chip was developed through an alliance of IBM, Apple Computer, Inc. and Motorola, Inc. IBM initially pitched the chip as an alternative to the Intel Corp. family of chips. Apple uses the chips in its Power Macintosh lines, and Motorola and IBM have announced servers and desktop systems based on them. The firms are also trying to develop a standard hardware reference platform for the chip, which is expected to be defined by the first quarter of next year.

The IBM sources said that under the planned restructuring, all channel strategies, marketing, branding and manufacturing of IBM's PowerPC desktop and PC server lines will be folded into the PC Co.'s Intel PC lines. Research and development teams will remain separate but will be under the PC Co. umbrella.

Plans for restructuring need clearance from Robert Stephenson, the recently appointed general manager of the PC Co., the sources said.

"The message they are trying to send out is that they are not niche marketing the PowerPC anymore, that it has got the level of [corporate] commitment to make it a commercial success," said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

Some users hope the move will boost IBM's PowerPC initiatives. "If it is strategic, and IBM plans to settle on one single technology, then that is probably bad news for the PowerPC. But if it is simply an organizational shift, then it may be beneficial because it could sanction the PowerPC and Intel systems as equals," said Bob Anderson, a senior analyst at A. O. Smith Corp., an automotive parts company in Farmington Hills, Mich.

Any restructuring will only prove beneficial to IBM's Power Series systems, which were announced in June after months of delay.

"So far, IBM has done a lot of fumbling [with PowerPC]. . . . To have PowerPC as a separate unit from the PC Co. doesn't make sense. They need a unified marketing strategy," said Joseph Feriazzo, an analyst at WorkGroup Technologies, Inc. in Hampton, N.H. "IBM needs to say to customers that Intel machines are the volume, but PowerPC systems offer the real performance."

Intuit, banks partner on secure home banking services

By Cheryl Gerber

Intuit, Inc. and 20 top banking partners last week popped the lid off a wide software and on-line services offering that is expected to ignite the market for secure 24-hour electronic banking.

The Intuit on-line financial service, called Investor Insight, is unique in that it tailors on-line investment management advice to users' individual portfolios.

Menlo Park, Calif.-based Intuit said it will ship a new version of its popular Quicken package, called Quicken for 96, along with the on-line financial services and a new financial software suite on Oct. 26.

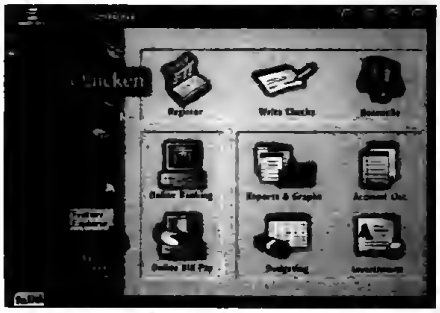
Gradual recognition

The electronic-mail and in-depth reporting capabilities in the new version of Quicken are also innovative, although the banking function is standard fare, said David Weisman, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Microsoft Corp.'s Money product has offered on-line banking since last year. But most banks were slow to adopt it until financial institutions began offering their own on-line services.

"Our competitors are not only banks, but mutual fund families and brokerage firms. We need to be as technologically advanced as they are. At the same time, our customers who are PC users have indicated they want this service," said Glen Johnson, senior product manager of self service banking at Bank of Boston.

The Intuit on-line services will include 24-hour links to stock and mutual fund data; American Express, Visa and Mastercard information, and Investor Insight's "Daily Personal Newsletter," which will provide customized information with the latest prices and news on stocks in a user's portfolio. All information and transaction requests from Quicken are encrypted with technology provided by RSA Data Security in Redwood City, Calif.



Quicken for 96, *or Quicken 5.0, is scheduled to be released next month*

Among Intuit's banking partners are industry heavyweights such as Bank of Boston, American Express Co. and brokerage firm Smith Barney Shearson, Inc. They said they hope to use the Intuit packages as a way to cut the cost of delivering financial services and eventually grow their asset base. Many will offer on-line services through both Quicken and Money because although Quicken has the lion's share of the market, the combination composes 90% of the market for on-line banking, Johnson said.

Some banks used the Intuit announcement to launch their own 24-hour on-line banking services. "We will go on-line for the first time with Quicken for 96 and Microsoft Money for Windows 95 late this fall," said Ed O'Neal, vice chairman of the Bank of Boston. Smith Barney is targeting a similar time frame, said Jay Mandelbaum, executive vice president of retail marketing and client services.

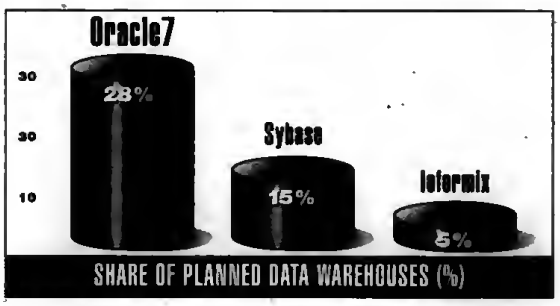
Smith Barney also plans to expand its on-line financial services to include full access to all brokerage accounts, Mandelbaum said.

Another banking partner, First National Bank of Chicago, is also beta-testing Quicken for 96. "Quicken is far and away the leader among consumers for personal finance management. This new version updates checking, savings and money market information when the customer is on-line," said James Grant, the bank's senior vice president of direct banking.

Before You Look Into A Warehouse, Check This Inventory

Data warehouses are central information repositories for storing and analyzing vast amounts of historical and reference data from a number of different sources, enabling users to gain insights into corporate performance and customer behavior that cannot be gained using disconnected operational systems. Oracle7 has more production features for data warehousing than any other DBMS available, bringing very large database capacity, fast query execution and the management of any data type to the open systems data warehouse.

DATABASE COMPARISON	ORACLE7	Sybase System 10	Informix 7.1
Terabyte Databases Supported	Lots	Never	None
>100+ Gigabyte Databases Supported	Hundreds	Never	None
Scalable SMP Support	Yes	Never	Yes
Scalable MPP Support	Yes	Never	No
Parallel Query	Yes	Never	Yes
Parallel Load	Yes	Never	No
Parallel Index	Yes	Never	Yes
Parallel Summarization	Yes	Never	Yes
Parallel User defined Functions	Yes	Never	No
Star Query Optimization	Yes	Never	No
Integrated Replication	Yes	Yes	No
OLAP Integration	Yes	Never	No
In Memory DB - 64 bit	Yes	Never	No
Integrated Text Video	Yes	Never	No
Spatial Data Integration	Yes	Never	No
	YES	NEVER	NO



META GROUP *ADS Data Warehousing Survey 1995*

According to Meta Group, Oracle7 is chosen by users nearly twice as often as Sybase and five times as often as Informix for data warehousing applications. If enabling employees to make fast, accurate decisions is important to your company's performance, call Oracle at 1-800-633-1071, Ext. 8197. Or download videos of our customers explaining the competitive advantage they get from the Oracle Warehouse solution at http://www.oracle.com/info/dw/video.html.

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HP plans clustering, chip upgrade for T500

By Jean S. Bozman
PALO ALTO, CALIF

Hewlett-Packard Co. is ready to boost its high-end T500 Unix commercial servers with chips that are 20% faster and build data warehouse engines by lashing together two to four T500s in parallel processing clusters, sources said last week.

The moves are expected to be announced at next week's Commercial Parallel Processing Conference in Chicago.

The use of parallel processing will allow T500 users to extend their databases and combine large engineering data files stored in separate machines.

"It's basically applying parallel technology to what today are SMP systems," said Gene Lee, an analyst at International Data Corp. in Mountain View, Calif. Parallel servers can be used to break down complex tasks, such as database queries, into smaller pieces for faster processing. Special software will preserve a "single-system image," analysts said.

Some analysts said the parallel systems are a creative response to user demands for more power because T500 machines top out at 12 CPUs. By contrast, Sun Microsystems, Inc.'s SPARCcenter 2000 has up to 20 CPUs, and Cray Research, Inc.'s CS 6400 has up to 64 CPUs in one machine.

"What HP is trying to do is let their loyal customers dip a toe in the water of MPP-style loosely coupled processors," said Paul McGuckin, an analyst at Gartner Group, Inc. in Santa Clara, Calif. He said he expects several new T500 units, including faster symmetrical multiprocessors (SMP) and the high-end, parallel processing clusters.

Users said bigger T500 units outfitted in clusters could boost database capacity for data warehouse applications. One high-end HP unit with 1T byte of data is expected to be shown at this week's International Oracle User Week conference in Philadelphia.

"One of the potential advantages of hooking these things together in a cluster is the capability of being able to balance the [workload] across the different machines," said Tim Moon, a systems specialist at Weyerhaeuser Co. in Tacoma, Wash., a big HP site with several T500 machines. Redundancy and backup are other advantages, he added.

William Turini, manager of open systems engineering at the Weyerhaeuser site, said he plans to install multiple T500s for round-the-clock availability of applications to the firm's manufacturing sites across the country.

HP's high-end system, said to be called the Enterprise Parallel System, may use a fiber-channel 100M byte/sec. "crossbar" switch to link many T500 Unix servers. IBM uses such a high-speed switch — like a fast telephone switchboard — to hook together many IBM RS/6000 CPUs in its IBM SP Parallel server, analysts said.

Industry observers said other Unix vendors, including Pyramid Technologies, Inc. and AT&T Global Information Solutions, have already turned to the parallel computing technique.

HP declined to comment on unannounced products. But Carol Mills, general manager of HP's General Systems Division, signaled HP's move beyond SMP and to parallelism during a speech at last month's Interex HP user conference in Toronto, saying, "We're ... moving into the world of highly parallel processing."

What it's got

HP's T500 units, outfitted in clusters, should boost database capacity for data warehouse applications. The HP T520 series is expected to include the following features:

- Up to 12 120-MHz PA-RISC 7150 chips.
- Ability to upgrade to PA-RISC 8000 chips next year.
- Support for HP-UX 10.0 Unix operating system.

CA picks way through Legent minefield

Two products killed, two added to Unicenter

By Thomas Hoffman

To general applause from users and analysts, Computer Associates International, Inc. last week confirmed industry speculation that AgentWorks and Prevail/XP-Paradigm will be the Legent Corp. products integrated into the CA-Unicenter systems management suite.

At the same time, CA dropped the other shoe on two Legent mainframe utility products it no longer plans to support — Epic/MVS and Prevail/XP-Rerun.

MCI's Andy Mullins: *AgentWorks is 'stronger point product'*

Meanwhile, CA, which acquired Legent last month for $1.74 billion, is being pestered by the threat of legal action by a tiny Arlington Heights, Ill., mainframe software vendor (see story at right).

AgentWorks is a suite of products based on the Simple Network Management Protocol and Common Management Information Protocol standards for monitoring databases, networks and other functions across Unix enterprises. Paradigm is a trouble-ticketing system that automatically identifies and records problems across distributed environments.

Users and analysts were pleased to hear about CA's Legent product integration plans because the existing trouble-ticketing modules on Unicenter are considered to be rudimentary. "AgentWorks is the one we're excited about because we believe it's a stronger point product" than the ICL SysAlert and DB Alert modules CA previously integrated into Unicenter, said Andy Mullins, director of network MCI Services Information Technology at MCI Communications Corp in Colorado Springs.

Although the alarms on the previous alert modules worked well, "the scripts were kind of ugly," said Doug Walker, a senior programmer/analyst in the Financial Services Division at Brigham Young University in Provo, Utah.

CA President Sanjay Kumar said AgentWorks and Paradigm could become available with Unicenter by year's end.

Kumar said CA also decided to discontinue support of Legent's Epic/MVS mainframe storage management system due to "technical issues" that he declined to discuss further. Kumar said CA will try to persuade the 225 licensees of both Epic/MVS and Rerun to migrate to comparable CA products such as CA-1, CA-11 and CA-Dynam.

CA appears to have done an admirable job of lobbying Wade Brown, executive vice president and chief information officer at Washington National Insurance Co. in Lincolnshire, Ill. Brown said he was all set to migrate from CA-1 to Epic and CA-11 to Rerun before the Legent acquisition was announced. Since then, CA has convinced him that it will double up on support. "I've had assurances from CA senior management that its support would be there," Brown said.

Others say Epic and Rerun customers will look elsewhere, however.

"I doubt very much that [Epic and Rerun] users will migrate to Computer Associates," said Brian Jeffery, managing director at International Technology Group, a Mountain View, Calif., market research firm. Alternative products include Candle Corp.'s Omegamon, Deltamon "or one of those other Jamaican barbecue products," he added.

Padding Unicenter

Computer Associates plans to integrate the following Legent packages into its CA-Unicenter distributed systems management suite. All products may be available to run with CA-Unicenter by year's end.

Prevail/XP-Paradigm
Trouble-ticketing and service application designed to automate workflow between network operations center and help desk

AgentWorks
Suite of products designed to monitor resources across databases, networks and the enterprise

Small vendor charges antitrust ruling breaks deal with Legent

By Thomas Hoffman

A fly has landed in CA's Legent soup.

RJM Systems, Inc., a tiny Arlington Heights, Ill.-based mainframe software company, is stirring things up over the Department of Justice's August decision to allow Computer Associates International, Inc. to cross-license Legent Corp.'s VSE mainframe utility software.

Under a 1993 sales agreement between RJM and Legent, RJM claims that Legent is prohibited from disclosing RJM source code used in the MVT version of Legent's Epic/VSE data center management software to other parties. MVT is a version of IBM's VSE operating system.

Since CA assumes responsibility for Legent's contracts, RJM is claiming that CA will be in violation of the agreement once it cross-licenses the Epic/MVT software to a third-party competitor.

"I'm not looking for a massive settlement. We're just trying to protect our investment," said Russ McNaughton, chief executive officer at RJM Systems. The company derives more than $100,000 in annual maintenance revenue from 25 Epic/MVT customers.

McNaughton said he will continue trying to negotiate a settlement with CA and hasn't yet filed any legal actions against the Islandia, N.Y., software titan.

A CA spokesman said RJM Systems' claims are without merit. "None of the Epic programs now marketed by CA compete with RJM's product," the spokesman said.

RJM's claims aren't expected to derail the Justice Department order for CA's investment banker, The Updata Group, to locate third parties to cross-license and support Legent VSE products, legal experts said last week.

Nevertheless, the small vendor's actions illustrate how difficult it is for an acquiring company to detect all outstanding contractual obligations during what is commonly referred to in legal circles as "due diligence."

Moving manufacturing systems to a client/server setup presents plenty of challenges. See page 77.

Micro Focus® Dialog System™

Life has its share of adventures. Does building a GUI have to be one of them?

Putting a Graphical User Interface onto your new client/server and COBOL applications can be simple, easy, and dare we say, fun. The new Dialog System from Micro Focus is industrial strength, scalable and optimized for COBOL programmers. Unlike departmental solutions, it can support your most important, enterprise wide business applications. With Dialog System, building a GUI can be as easy as the point and click of your mouse. No difficult training. No API calls. You can quickly prototype, test and refine your GUI. When you're finished tweaking, the prototype becomes the production interface. You can even make on-the-fly modifications (after your interface has been put into production) without changing the business logic of your system. That same interface can run on all the popular desktop operating environments without changes, because Dialog System GUIs are portable. Dialog System is the Big GUI Kahuna because it's the most powerful way to create a Graphical User Interface without exposing yourself or your code to the pain of making the wrong move.

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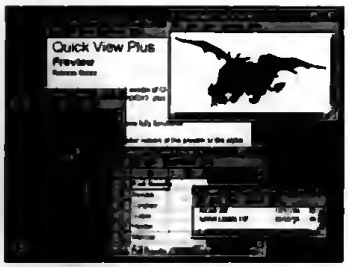
Windows 95 viewing capabilities extended with Quick View Plus

By Tim Ouellette

Windows 95 users can now get their hands on a veritable Rosetta Stone for viewing the multitude of files and file formats on their systems, without needing the original application.

Boston-based Inso Corp. will this week announce Quick View Plus, a file viewer add-on to the Quick View feature already in Microsoft Corp.'s Windows 95, which Inso licensed to Microsoft. Where Quick View lets users view 30 file formats in a draft mode, Quick View Plus supports 200 formats, including embedded graphics. It can also print the files.



Inso's Quick View Plus *supports 200 different formats, including embedded graphics and the capability to print the files*

Helping hand

Scott Norder, vice president at Inso, said the viewing software could be helpful at organizations that are migrating to Windows 95 but that still have some departments using Windows 3.1 applications and files. It could also benefit companies that have a number of application standards among departments, he said.

And mobile users won't have to search for compatible machines to read their files when they are working at remote offices, said Bonnie Brooks, an analyst at Creative Strategies in San Jose, Calif.

"It's nice to have the power to look at anything," said David MacCallum, contract specialist at PacifiCare of Oklahoma in Tulsa. "I get documents from attorneys and outside businesses in all kinds of formats" attached to electronic-mail messages or via disks, he said.

Quick View Plus also helps augment the Find File feature in Windows 95. When users search for a reference among their files, Quick View Plus lets them look at each file while highlighting the desired word.

"You can get a better clue about the owner of a file in a system," said Al Westerman, a voltage control specialist and Quick View Plus beta user at Seattle City Light.

Quick View Plus, which uses the Rich Text Format as the transport between the original file and the viewer, also maintains graphics, tables, fonts and spacing when users cut, copy, paste or print the file being viewed. The data is then read and used by the receiving application.

For example, a user can copy a table from a Macintosh spreadsheet into the Microsoft Word for Windows 95 word processor, which can then manipulate the data as a Word table.

Another viewing software package that will become part of Windows 95 later this year is Wang Laboratories, Inc.'s ImageVue. However, analyst Eric Brown at Forrester Research, Inc. in Cambridge, Mass., said the product is primarily used to view multipage image files created from scanners.

Quick View Plus will cost $49 and ship by the end of the month. Windows 3.1 versions are also available.

@Talkback@cw.com

WE ASKED: What do you think should be done to make the Internet more reliable and secure ["Internet Hiccup," CW, Sept. 11]?

YOU SAID:

When improper 'netiquette becomes damaging behavior, one wonders what means there are to prevent such occurrences. A proposal: Internet users should be licensed, required by their service providers to pass a standard test to gain access. When they drive on the wrong side of the info-bahn, their licenses should be suspended!

● David Bradford, Cascade Corp. (dbradfor@teleport.com)

1. Replace Unix with a more modern operating system that is *secure*. VMS and Windows NT are better systems that are *here now*.
2. Junk the Simple Mail Transfer Protocol mail "system," which is unreliable and a joke as far as security is concerned. Any junior high school kid can learn to falsify mail by using Netscape on a PC or changing a reply-to address in Unix.
3. Make it impossible for the user to change the basic machine identification, so it is always known which machine was used to launch falsified mail, hacker efforts, etc.
4. Letting any machine on earth in an insecure location, such as obscure corners in libraries, be directly on the Internet is insane. The institution should promise that they will monitor who uses the machine.
5. Slap fines on companies and institutions when their machines prove to have been used to hack or falsify mail.

Hope others share these views!

● Ginny Metze (metze@vmsa.mrl.uiuc.edu)

I am not comfortable using the Internet for financial transactions. I fall into the 80% of people who prefer to do their banking with human tellers instead of ATMs. I believe the Internet is giving people a false sense of security. To assume that no fraud, misrepresentation or criminal activity occurs by way of electronic communications is simply naive. I think it will be a long time before I am convinced that the Internet is a secure and reliable communications media.

● Imre Gajari (igajari@haverford.edu)

News Shorts

Apple cautions Wall Street, issues laptop recall

Apple Computer, Inc. last week announced that chronic shortages of key components, product delays and price pressures on its older models have contributed to a plunge in its anticipated fourth-quarter earnings. Financial analysts swiftly dropped their projections of Apple earnings in the fourth quarter from $1.02 per share to 50 cents per share.

Compounding its problems, Apple also said it has stopped shipping its PowerBook 5300 series of portable computers because of battery malfunctions. Two of its high-end portables being used by Apple employees overheated and burst into flames. Apple is recalling 1,000 of the PowerBook 5300s, which shipped last month with new lithium ion batteries. Apple is expected to resume delivery of the systems with the metal hydride batteries used in earlier PowerBooks.

CA ordered to pay royalties

A New York State Supreme Court arbitration panel last week decided that **Computer Associates International, Inc.** owes four independent software developers $11.9 million in back royalties and damages after failing to honor a contract between the programmers and Online Software International, Inc. in Fort Lee, N.J. CA acquired Online Software in 1991. The programmers' code is used in CA-DataVantage, which simplifies the data management of DL/1 files in IBM mainframe systems. A CA spokesman said the company is planning to appeal.

IBM delays mainframes

IBM has delayed delivery of its air-cooled mainframes by one to four weeks due to a shortage of power supplies it buys from an outside vendor. The second-generation 9672 R machines began shipping in late July and continue to go out the door, but customers will get the systems later than was promised. The power supply shortage will last until mid-November.

AST facing significant losses

AST Research, Inc. said it anticipates a loss significantly higher than the $40 million it lost in this quarter last year. The company also announced the resignation of President and Chief Operating Officer Jim Schraith.

AT&T raises the ax

AT&T Corp. is preparing for a massive restructuring of its **Global Information Solutions** subsidiary that is expected to result in 10,000 layoffs, or more than 20% of the workforce. AT&T GIS, the former NCR Corp., has been a money loser for AT&T.

Print wherever, whenever

Heavyweights **Digital Equipment Corp., SunSoft, Inc.** and **Xerox Corp.** are joining to create a network printing service by mid-1996 that will let users access any printer, anywhere in the company. Printxchange will initially come bundled in existing products for Digital's Unix and SunSoft's Solaris operating systems and for Xerox, Digital and Hewlett-Packard Co. printers.

Do you believe in Magic?

General Magic, Inc., which makes Magic Cap, communications software for handheld computers, is giving away its software via the Internet and World Wide Web. Magic Cap for Windows will be available next year for free through AT&T's PersonaLink and other on-line services.

FBI nabs 12 for on-line porn

The FBI last week said it has arrested 12 **America Online, Inc.** users for possessing and/or disseminating child pornography. The adults, who live in Dallas, Miami, New York and Newark, N.J., were the subject of a two-year FBI operation. The action marks the first time federal agents have investigated a network for crimes committed on-line.

Indeo gets interactive

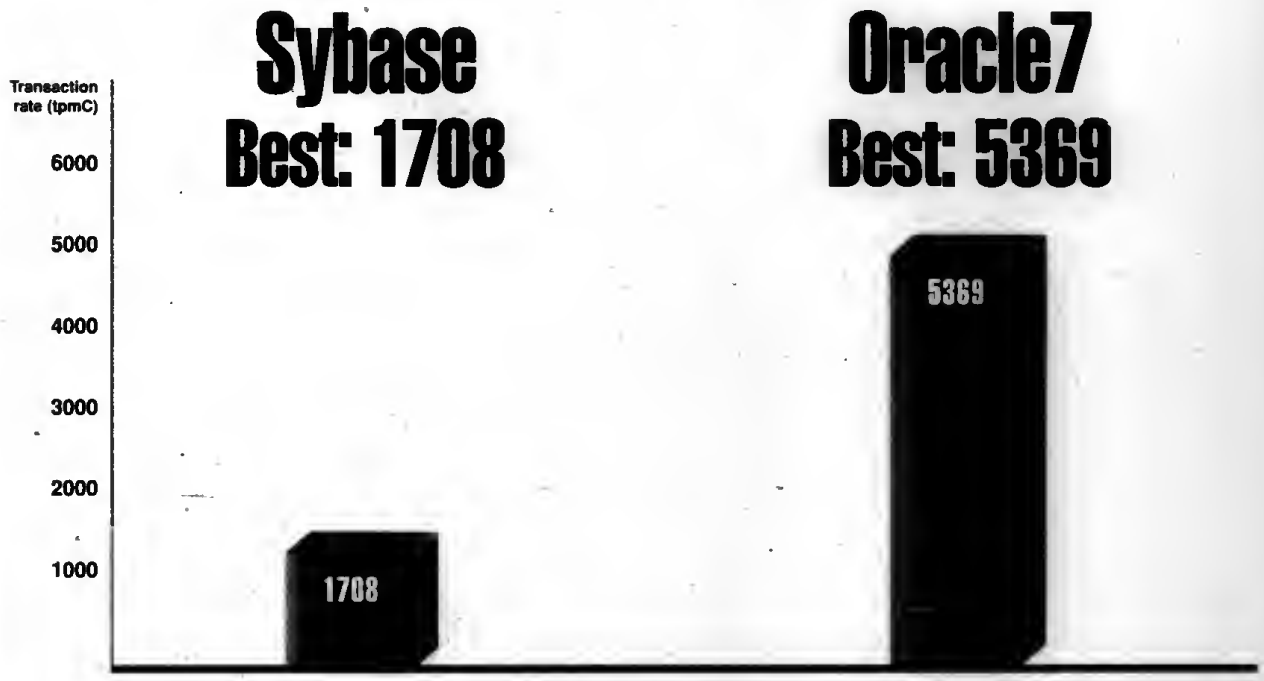
Intel Corp. last week announced the latest version of its Indeo video standard, called Indeo video interactive. It provides real-time interaction and control of video and graphics in PC applications, said the Santa Clara, Calif., firm.

Bay flips on new switch

Bay Networks, Inc. last week announced Model 5000AH, a 16-port Asynchronous Transfer Mode (ATM) switch with a 5G bit/sec. aggregate switching capacity for its System 5000 high-end switching hub. Also unveiled was the ATM Routing Engine interface for its Backbone Node router.

Database Performance

The TPC-C™ test is the industry standard benchmark measuring database On-Line Transaction Processing (OLTP) performance. On July 24, 1995, Hewlett-Packard published an audited TPC-C benchmark of Oracle7 that set the record for open systems performance, beating Sybase System 10's best result on any computer by more than 200%. (It's almost not worth mentioning, but we also creamed Informix.)



Sybase's CEO recognizes they have technology and performance problems. So should you.

" We were slow to realize this [scalability] was an issue in the marketplace."
Mark Hoffman, Sybase CEO, *The Wall Street Journal*, April 14, 1995

" We're trying to investigate the problems now. You peel back the onion, you find out more stuff."
Mark Hoffman, Sybase CEO, *San Francisco Chronicle*, April 5, 1995

Experts and customers recognize that Sybase's problems will take a long time to fix. So should you.

" The time between major enhancements of their [Sybase's] database is the longest of any major vendor."
Salomon Brothers, *Computerworld*, April 17, 1995

" They've got a lot of work to do and they have to go pretty deep in the core of the code."
First Albany, *Information Week*, April 17, 1995

Scalability and parallelism make Oracle7 the technology and performance leader. The results of the HP TPC-C benchmark provide graphic proof.

" Oracle has set the high water mark for open systems platforms. We look for more to come."
Jim Johnson, Chairman, *Standish Group*, July 24, 1995

" Oracle's TPC-C numbers dramatically alter the competitive landscape...Oracle is telling the competition to put up or shut-up."
Peter Kastner, Vice President, *Aberdeen Group*, July 24, 1995

If you don't have time to wait for a database that is slow to run transactions or a company that is slow to fix its technology call Oracle, the proven performance leader. Find us at 1-800-633-1071, ext. 8193 or http://www.oracle.com/ on the Web.

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TPC results as of July 21 1995 Sybase results based on Digital Alpha 2100 ($555/tpmC) Oracle results based on HP 9000 T500 ($535/tpmC)

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PowerBuilder makes Unix debut

By Frank Hayes

A year after saying it would move beyond Windows, Powersoft Corp. has finally announced the first version of its popular PowerBuilder application development system for a non-PC operating system.

PowerBuilder for Unix, which is slated to ship by mid-November, will operate on Sun Microsystems, Inc. SPARC-based workstations running the Solaris operating system. Concord, Mass.-based Powersoft, a unit of Sybase, Inc., also plans PowerBuilder releases for Hewlett-Packard Co.'s HP-UX and IBM's AIX versions of Unix.

The Sun release will run all existing applications written for PowerBuilder running on Windows as long as the applications do not make calls to external custom-written routines. The new version will also support applications that use Powersoft's object library.

"We were hoping for PowerBuilder [for Unix] to show up last fall, and we've been hanging on for a year for this to arrive," said Thomas Gagne, vice president and client application specialist at Comerica Bank in Detroit.

But Comerica is having no trouble using a beta version to port its PowerBuilder-based customer service applications to its Sun workstations, Gagne said. Those include programs that use real-time stock-market feeds and other custom routines that aren't directly supported by PowerBuilder.

Unix versions of PowerBuilder are crucial to Powersoft's plans to let developers easily split up applications among multiple computers, such as a Windows-based PC and a Unix server. Competition among tools for building those distributed applications is fierce. For example, Microsoft Corp. last week officially rolled out Visual Basic 4.0, which includes the ability to let program components communicate across a network.

Bandwagons ho!

Gupta Corp. plans to announce a Solaris version of its fourth-generation language. SQL Windows for Solaris, which the Menlo Park, Calif., firm will announce this Tuesday at Unix Expo, is slated to ship in November.

The current PowerBuilder release doesn't support such partitioning, but that capability is planned for PowerBuilder Version 5.0. The company plans to ship Version 5.0 by next summer.

Sticking point

In the meantime, some users hope to put the new fourth-generation language to work in bridging the gap between PCs and Unix workstations in other ways. "Right now, our users running [geographic information systems] programs on Sun workstations can't use PowerBuilder applications without a Windows machine on their desk, too," said Larry Gezelius, project lead for the Pierce County information systems department in Tacoma, Wash.

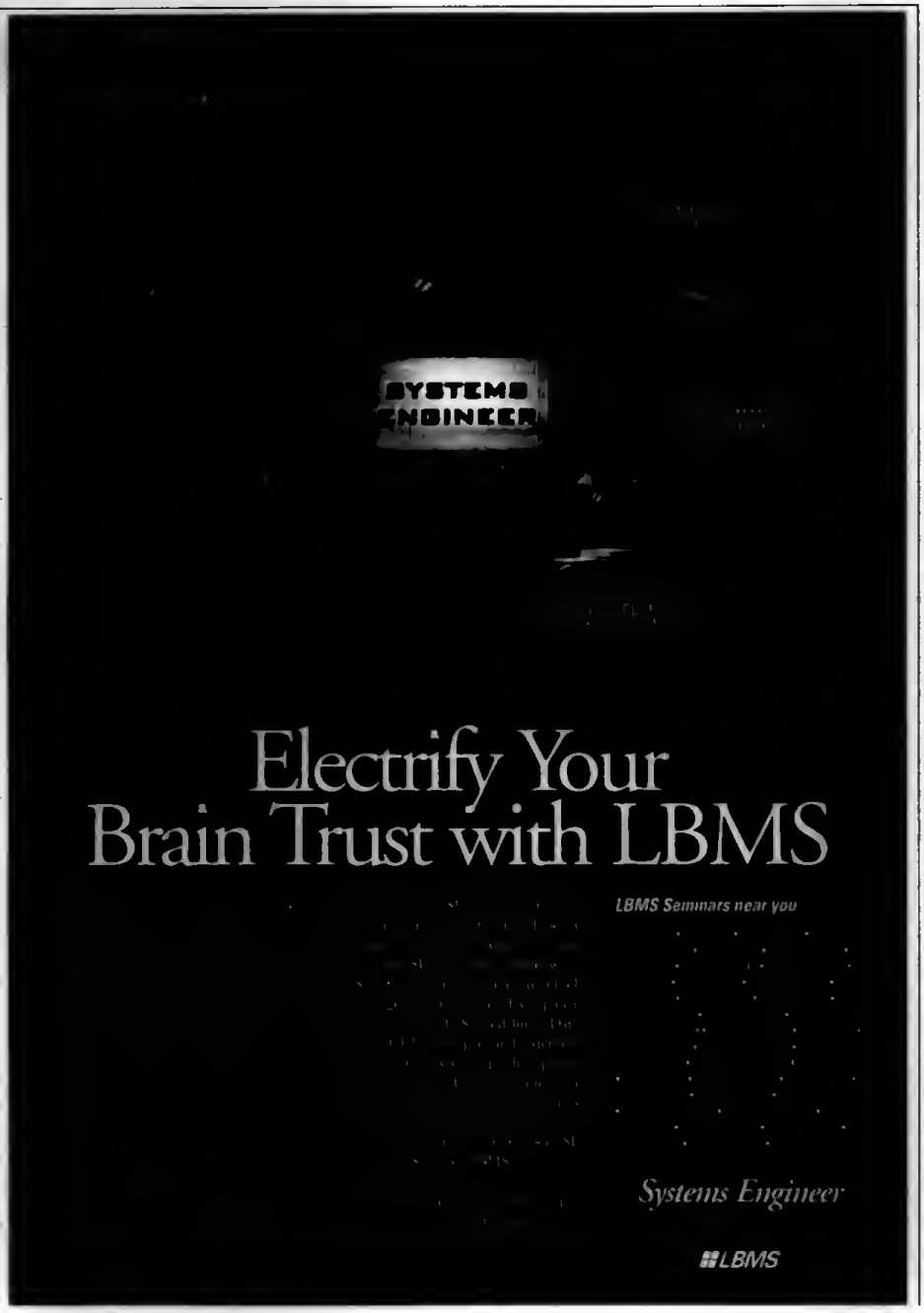
That is a problem because users and developers prefer PowerBuilder applications to those built with the forms system for ARC/Info, the GIS that the county uses, he said. The Solaris version of PowerBuilder will give those users direct access to PowerBuilder applications.

Some 23% of PowerBuilder developers deploy applications on Sun servers, according to a survey taken at this year's Powersoft user conference in May. But not all PowerBuilder users care.

"I saw a demo of the Unix version, the Mac version and a version on NT running side by side. The technology was impressive, but it's not something we need; we have no plans to go multiplatform," said John DaSilva, system development manager at the Gas Research Institute in Chicago.

Pricing for the multiplatform versions of PowerBuilder starts at $3,295.

Microsoft releases Visual C++. See story page 87.



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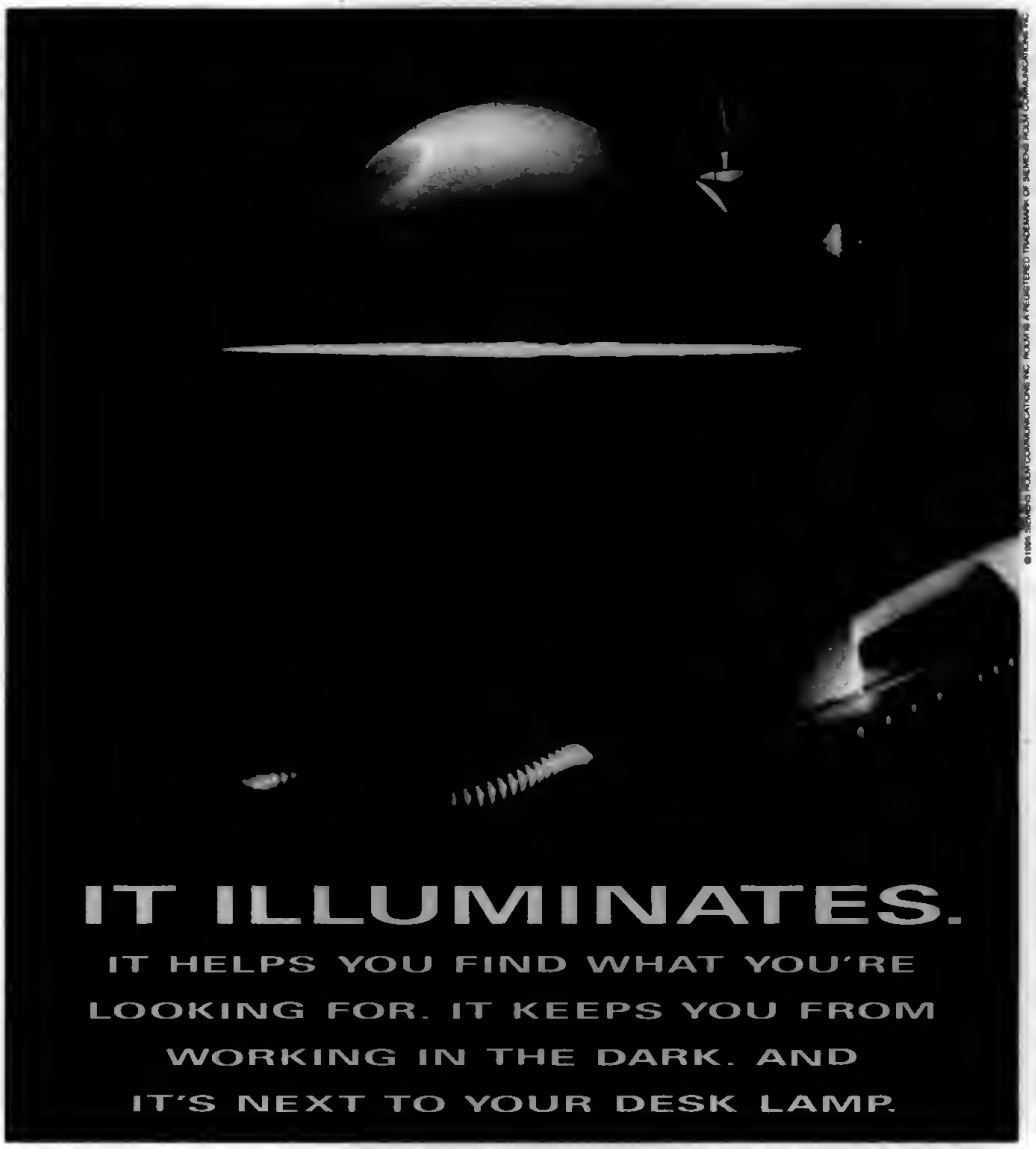

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AI system all washed up

Fed plan to curb money laundering may dissolve

By Gary H. Anthes
WASHINGTON

The congressional Office of Technology Assessment (OTA) next week will throw cold water on the hope that computers armed with artificial intelligence can curb the money laundering that accompanies drug trafficking, prostitution and white-collar crime.

The idea that computers can detect money laundering is fraught with technical, political, legal and cost obstacles, according to an OTA report, a summary of which was released last week.

Most of the ideas examined by OTA involve law enforcement analyzing massive amounts of money wire transfer data from banks. The problem is that systems do not exist to do the analysis, and privacy laws forbid giving the information to the government.

"This idea was originally put to Congress as, 'Let technology do it. Let a supercomputer solve this problem,'" said Steven Bonorris, an analyst and attorney at OTA. "But there are a lot of impediments."

Bonorris said it is up to Congress to decide what to do next.

A panel of law enforcers, banking industry officials and privacy advocates that worked on the OTA report nevertheless agreed that money laundering is a huge cost to society and cries out for curbs — both automated and otherwise. Hundreds of billions of dollars are hidden each year by criminals who route electronic money transfers from country to country without leaving audit trails, the panel said.

OTA did outline two ideas for detecting suspicious patterns in money transfers. One idea would empower the Financial Crimes Enforcement Network (FinCEN) of the Treasury Department to issue automated subpoenas for bank records.

The subpoenas would be triggered by an AI system at FinCEN that looks at the Currency Transaction Reports filed by banks for currency transactions over $10,000, said Vary Coates, OTA project director.

The other idea is for banks to prescreen wire transfer data, eliminating those transfers from established customers and other trusted parties. Those in doubt would be forwarded to FinCEN for investigation via the AI system. "That would greatly enhance their ability to do investigations," Coates said.

Resistance expected

David Vogt, assistant director at FinCEN, acknowledged it would be difficult to get privacy advocates to go along with any scheme that gives the government detailed information about individual and corporate financial transactions. He also said banks would resist anything that imposes more regulations on them.

Reporting wire transfer data to the government would constitute "the kind of tremendous surveillance state that I can't see a democratic society willing to accept," said privacy expert Joel Reidenberg, a law professor at Fordham University in New York and an adviser to OTA.

Trouble over Chicago

Congress to investigate failing air-traffic control systems

By Mitch Wagner

The breakdown last week of the 30-year-old mainframe used to guide planes around Chicago's bustling O'Hare International Airport triggered a congressional subcommittee investigation of ways to improve air-traffic control systems in Chicago.

The aviation subcommittee will meet in Chicago to determine whether the Federal Aviation Administration is taking sufficient action to upgrade the aging systems, whose breakdowns have led to more than 20 shutdowns and delays for planes since the spring, including the 40-minute delay in Chicago last Tuesday.

The National Air Traffic Controllers Association applauded the congressional interest.

"The situation has really developed into a crisis," said association spokesman Jeff Beddow. "It's gotten to the point that systems are breaking down more frequently, without warning [and] often in crowded airspace areas."

The outdated systems mean that air-traffic controllers are operating at the edge of their safety margins. So if the system has problems, planes need to be grounded, Beddow said.

Recent grounding

Last Tuesday, the FAA delayed takeoffs from O'Hare and other airports nationwide for planes bound for Chicago. The IBM 9020E mainframe used to guide planes had broken down the night before.

The FAA decided to ground the planes when the main backup system for the mainframe broke down, too, forcing air-traffic controllers to rely on secondary backups. No lives were at risk in the computer breakdown, however.

The same computer model has led to more than 20 delays and outages in five control centers nationwide since the spring, including at least one other in the Chicago area in July.

Earlier this month, the FAA took a step toward an interim solution. It awarded a $10 million contract to begin replacing the old mainframes to the Loral Air Traffic Control division of systems integrator Loral Corp. in New York. Loral will install the new systems beginning in Chicago in October 1997.

The FAA estimated the cost of the interim replacements at $35 million. In 1998, Loral will begin installing a more long-term solution with new software running on IBM's RS/6000s.

The congressional subcommittee, led by chairman John Duncan (R-Tenn.), will look into how serious the problems are and whether the FAA's plans for a remedy are adequate.

Six hackers stung by undercover cybercops

By Gary H. Anthes

In an electronic sting operation that may herald the arrival of a new crime-fighting technique for cyberspace, the federal government last week nabbed six hackers by luring them to sell secrets over the Internet.

Computer security experts said the technique is badly needed to curb cybercrimes, which are growing each year.

"Operation Cybersnare" caught the hackers and led to the seizure of 20 computers in seven states. The six are charged with a variety of crimes dealing with the fraudulent use of cellular telephone systems.

Internet crime

"The cellular industry is losing over $1 million a day to this kind of crime," said Bernie R. Milligan, president of Houston-based Communications & Toll Fraud Specialists, Inc. "And that's growing at 25% a year."

American businesses are losing $3.5 billion annually to communications fraud, and computer and communications systems managers often overlook the threats from their own employees, Milligan said. "There are a lot of hackers working for Fortune 500 companies," he noted.

Milligan disputed the claim that this was the first electronic sting conducted by law enforcement. But he said it may be the most successful so far — if the government wins convictions, that is.

The lowdown

The Newark, N.J., office of the U.S. Secret Service, which ran the sting for eight months, said the hackers used the Internet and a private bulletin board service in deal in stolen cellular telephone and credit-card data worth millions of dollars.

The thieves stole numbers used to encode cellular telephones. When those numbers are programmed into other phones, the resulting "clones" can be used to make unauthorized calls by impersonating the original telephone, said Peter A. Cavicchia, a special agent for the Secret Service.

An undercover agent established a bogus bulletin board called "Celco 51," which was used to solicit the sale of stolen cellular phone codes, he said.

THE LAST PLACE YOU WANT a big database is on a small computer. Which is precisely why you need Watcom™ SQL. *DBMS Magazine* recently noted how "its small footprint, security features, and ease of replication are making it a household name in mobile computing."* In fact, Watcom SQL only requires about 4MB of RAM. And according to the same article, "Oracle's standalone product has resource requirements considerably beyond what you might expect to put in a notebook PC." So before you choose a database, remember what that "O" stands for in Oracle—oink.

WARNING: Oracle recommends a plump 32MB of RAM for its workgroup database. Which is simply too enormous to run in places like mobile computers, PDAs and remote sites. If you want a database that isn't such a porker, call 1-800-SYBASE-1 ext. 4486.

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Tandem box appeals to large database users

By Michael Goldberg

In an effort to broaden its enterprise-level appeal, Tandem Computers, Inc. this week will unveil a new Unix-based server with high data throughput and a fault tolerance option.

Available in December, Integrity S4000 will be Tandem's first system to include its ServerNet technology, which uses 300M bit/sec. router hardware and software to move data among computers, communications controllers and peripherals.

Unix servers

The increased data throughput has captured the interest of Tandem users. Ed Gropp, senior vice president of information systems at Revco D.S., Inc., said his Twinsburg, Ohio-based chain of 2,100 pharmacies uses 21 Himalaya K10000 servers. It is now eyeing Integrity to better analyze data and create a more open systems environment.

"We're interested in it. We have large databases dealing with prescriptions we write for customers. There's tots of analysis we'd like to do with that," Gropp said.

According to industry observers, Tandem is aiming at the heart of emerging business applications that require lots of data throughput: data warehousing, data mining and eventually video servers.

With Integrity S4000 and ServerNet, Tandem enters a fiercely competitive enterprise server market with major players such as IBM, Hewlett-Packard Co., Sun Microsystems, Inc and Digital Equipment Corp.

"Nobody thinks of Tandem as a general-purpose computer supplier. With the ServerNet technology, Tandem can think of being a general-purpose supplier," said Jim Johnson, president of The Standish Group international, Inc. in Dennis, Mass.

Market differentiator

Richard Winter, president of Cambridge, Mass.-based Winter Corp., said Tandem can differentiate itself in the Unix market through ServerNet. With Tandem's promise to offer clustering between ServerNet-based computers starting late next year, the company shows a potential technological edge in a hotly contested field, he said.

Officials at Cupertino, Calif.-based Tandem said the company would exhibit the Integrity model at the Unix Expo show in New York this week. Tandem also plans next year to introduce ServerNet-based models that will run on Microsoft Corp.'s Windows NT and its proprietary NonStop Kernel operating system.

LinkWorks

CONTINUED FROM PAGE 1

strategy, which includes the creation of a Connectivity Software Business Unit focused on client/server and internetworking applications [CW, Sept. 11], places LinkWorks under the systems integration business. As part of that reorganization, Digital's relationship with FABA "is winding down," a spokesman confirmed.

Future developments of LinkWorks will come out of Digital's engineering center in Apeldoorn, the Netherlands.

Seen by industry analysts as a potential rival to Lotus Development Corp.'s Notes groupware program, LinkWorks is an integrated set of object-oriented applications sold through Digital's systems integration software business and third parties. Most of its 25,000 users spread across 350 sites are in Europe, with government agencies making up 30% of them, according to Digital.

Groupware

Michael Frow, vice president and chief credit officer at the Bank of Montreal's Chicago office, said he has worked closely with Digital and FABA for the past three years, providing feedback for LinkWorks designers. He said Digital has provided "superb" support for his bank, which has about 700 LinkWorks users. Yet there is still more development work to do.

"I don't regard LinkWorks as having reached the end of the road in terms of development, particularly with respect to the user on the road," Frow said. The product needs to round out LinkWorks with this mobile capability, he added.

"I would hope what this means is that Digital regards LinkWorks as a mature product in an area of strategic importance going forward," Frow said.

A Digital spokesman said that with LinkWorks Version 3.0's unveiling in March, "the product has reached a maturity level that makes it practical for Digital to consolidate development work that had been done at FABA, with [Digital's] ongoing activities at Apeldoorn." Digital officials insist that this change doesn't affect the future importance of LinkWorks as a software product, but some analysts are now dubious about that commitment.

"Digital is essentially backing away from [LinkWorks] but will continue to do maintenance and some modest enhancements," said Tom Austin, research director at Gartner Group, Inc. in Stamford, Conn. "Fundamentally, Digital doesn't want to invest the hundreds of millions of dollars to be successful in the software business."

Joann Broder, managing partner at AT&T Global Information Solutions professional services in Norcross, Ga., said she believes Digital will continue strong support for LinkWorks. Her firm markets LinkWorks to the health care industry. "I have no intention of backing off my commitment to the product," she stressed.

Digital will continue to support LinkWorks through its integration business, said Ed Turkel, strategic marketing manager for Digital's systems integration software unit in Littleton, Mass. "From the standpoint of an existing Digital customer, nothing has changed," he said.

In announcing the Connectivity Software Business Unit, Digital officials said they would continue to support their existing software lines, but the company could sell off some lines to third parties as it has done in the past.

Strict schedule

The following integrated job schedulers can handle repetitive and impromptu tasks such as report gathering and generation or backups on diverse client/server systems

Vendor	Software & Management Associates	Vinzant
Product	OpCon/Cross Platform Server	Event Control Server
Platforms supported	Digital's VMS, OpenVMS and Unix; IBM's AS/400 and AIX; Sun's SunOS and Solaris; Pyramid's DC/OS; Sequent's PTX; Unisys' 6000; Unix variants from Data General, Hewlett-Packard, AT&T GIS and The Santa Cruz Operation	DOS; IBM's OS/2 and LAN Server; Microsoft's Windows 3.1, Windows NT, Windows 95 and Windows NT Server; Novell's NetWare; Banyan's Vines; Digital's Pathworks
Starting price	$7,500	$4,995

Tackling mixed net needs

Job scheduling tools automate processes on diverse systems

By Patrick Dryden

DALLAS

The pairing of two scheduling tools promises to bring diverse client/server networks the centralized control of mainframe job control language. This capability will enable lean information systems departments to automate multiple processes throughout networks of mixed systems.

Automated net management

At last week's Network Expo here, Software & Management Associates (SMA) and Vinzant, Inc. announced the integration of their tools. Both offer scheduling and batch processing servers that interact with agent software on systems ranging from PC and Unix clients to servers of all sizes.

Under the agreement, administrators supporting networked environments can link each vendor's console to prepare and monitor batch processes — data gathering, report generation and backups — that involve diverse systems.

Downsizing complement

Such efforts strive to provide the elements of mainframe job scheduling, which is missing from distributed LANs, so that organizations can handle large and complex workloads as they downsize critical business applications, according to Matt Cain, a vice president at Meta Group, Inc., a consultancy in Westport, Conn.

Agent-based control over a range of systems, as opposed to specific applications, appealed to an IS manager from a real estate management firm here. He had to relocate a server near someone who could shut down and restart an accounting application whenever backups ran because the firm lacked agent software.

"I want control over the systems myself because we can't get major application developers to commit to the range of platforms in our network," said Richard Miles, technical services manager at Prentiss Properties, Inc.

"Vendors think DOS is dead, for example, or won't support both Windows and OS/2," Miles said. "So, we're stuck waiting for them to keep up with the changing application programming interfaces."

One user of Vinzant's Event Control Server (ECS) package was eager to hear more about the expanded capabilities. UCA&L in Buffalo, N.Y., uses ECS each night, first to extract data from Unix servers on the sales and support calls it handles daily and then to generate reports on Microsoft Corp.'s Windows NT-based SQL Server.

"We'd like to find a medium for controlling both worlds, the PC LANs and the Hewlett-Packard Co. Unix systems," said Scott Gribben, supervisor of advanced information technology services. "The ECS interface and functionality have been great for LANs, but the Unix staff needs something beyond Cron." Cron is the embedded Unix scheduling function.

Hobart, Ind.-based Vinzant introduced Version 4.0 of ECS last week, enhancing the tool for PC LANs and clients. Among 50 new features are job flow projection and simulation, automated control over resources such as database and mainframe connections, and messaging interfaces.

Separately, Houston-based SMA has enabled the System Activity Monitor for its OpCon/Cross Platform Server to manage Vinzant's agents as well as its own for Unix and other systems.

Managing printers over the network could become easier. See page 73.

Netscape delves deeper into Web with tools

Products target IS application development

By Kim S. Nash

Netscape Communications Corp. this week will announce a series of development tools for building applications for the World Wide Web. A major upgrade to Netscape's Navigator Web browser is also due to start beta testing this week, company officials said.

Navigator 2.0 features support for electronic-mail capabilities and Sun Microsystems, Inc.'s Java scripting language. Navigator Gold is more powerful than Version 2.0 and includes Netscape's authoring language based on Java object-oriented technology. Mountain View, Calif.-based Netscape plans to ship four new products in December (see chart).

The products take Netscape further from its roots in simple Web browsers and toward more complicated products. The products will target information systems shops serious about building and administering internal and external Web sites, observers said.

NETSCAPE'S NEW WEB TOOLS

Tool	Function	Price
Navigator 2.0	Web browser upgrade	$49
Navigator Gold	Browser with a WYSIWYG editor for writing Hypertext Markup Language code	$79
LiveWire	Web site management tool	Less than $500
LiveWire Pro	Management utility with options to link Web programs to corporate relational database systems	Less than $1,000

In fact, browsers in general are quickly losing their glamour among hot, new Internet products despite their sizzle as recently as two or three months ago, said Richard Villars, an analyst at International Data Corp. in Framingham, Mass.

Browsers "are becoming a given. They're just another user interface that people expect with their applications," Villars said.

Spyglass, Inc. in Naperville, Ill., for example, wants to line up as many resellers for its Enhanced Mosaic browser as it can, partly so it can focus on building and selling more sophisticated Internet products targeted at IS departments, a spokesman said.

While Spyglass doesn't plan to abandon the browser market, the firm wants to spread out to other parts of the Web, he said.

Last week, Spyglass added RSA Data Security, Inc. in Redwood City, Calif., to its list of 35 reseller partners.

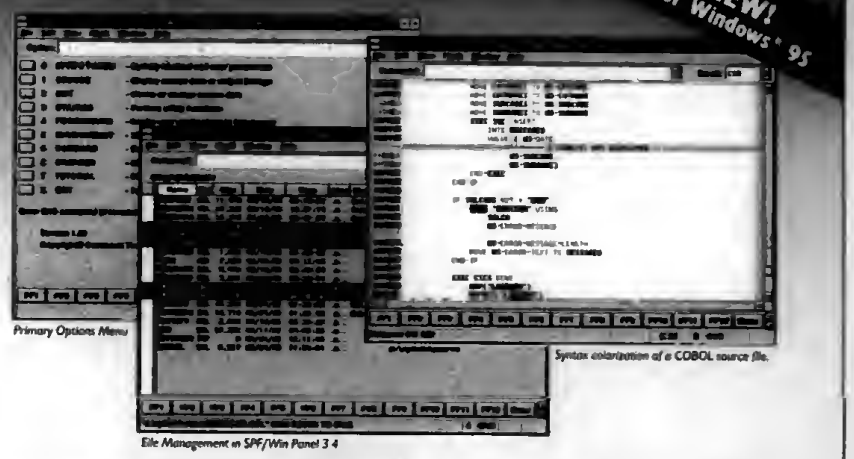
Development tools that help users create applications for the Web "are what we're really interested in now," said Art McAnarney, a senior programmer/analyst at Lockheed Martin Corp. in Littleton, Colo.

Lockheed, which expects to put 80,000 employees on the Internet by the end of the year, plans to evaluate Netscape's new products, McAnarney said. He said he is especially interested in Navigator 2.0's Java support.

"Java's a big deal to us," he said, explaining that Lockheed plans to use Java to create several new applications for internal Web sites throughout the company during the next year.

The relatively low price of Netscape's tools will draw users, Villars said. But Netscape isn't home free.

Oracle Corp., Next Computer, Inc. and ParcPlace-Digitalk, Inc., among other well-established tool companies, have announced plans to ship Web development products early next year.



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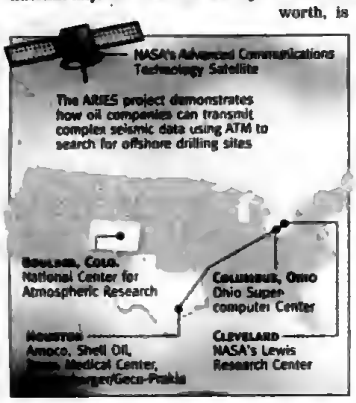
Sky's no limit for ATM use

By Neal Weinberg

Taking a cue from critics who dismiss Asynchronous Transfer Mode (ATM) as pie in the sky, ATM pioneers last week beamed complex seismic data via satellite at the dazzling speed of 155M bit/sec.

The most powerful demonstration yet of the potential of ATM was conducted by a consortium of oil companies, government agencies, ATM equipment vendors and carriers. It is expected to lead to significant improvements in the way oil companies search for offshore wells.



The ATM Research and Industrial Enterprise Study (ARIES) is blazing the trail for the eventual construction of multivendor ATM wide-area networks that can be used by other industry groups, according to David Beering, ARIES project director and staff telecommunications analyst at Amoco Corp. in Chicago.

Demo details

During the demonstration, three-dimensional seismic data gathered from the ocean floor was sent from the National Center for Atmospheric Research in Boulder, Colo., to a NASA satellite to the Ohio Supercomputer Center in Columbus. The voice, data and video then went over land lines to sites in Cleveland and Houston, where scientists conducted real-time analysis.

Jim Schwartz, marketing manager for data services at Ameritech Corp in Chicago, said the demonstration is a model of how ATM networks will be constructed in the future, with interconnectivity between long-distance and regional carriers. Three ATM hardware vendors and five carriers worked together to build the network.

Schwartz also claimed that the demonstration showed that "ATM is further along than many people think," adding that it provided a sneak peek at how ATM will change the way business is done in certain industries.

For example, the petroleum industry now sends out specially equipped ships to conduct seismic surveys of the ocean floor looking for likely spots at which to drill for oil. The data, as much as 1T byte's worth, is collected on magnetic tape.

From there, according to Ray Cline Jr., director of information systems at the American Petroleum Institute, it can take as long as a year for the data to be processed and analyzed. If the analysts decide more data is needed or that the data collection process needs to be altered, it can take another year to reserve a ship.

The goal of ARIES, from the petroleum industry's perspective, is to eliminate that two-year cycle. The idea is that real-time interactive analysis will occur via ATM between the ship and the scientists on shore, Cline said.

He said the key is the high-speed data capability of the satellite. Previously, the highest speed that data could be sent over satellite was in the T1, or 1.5M bit/sec., range, Cline said.

Cline said the institute is drawing up a business plan and hopes to enlist support from the rest of the industry. The idea would be to create a nationwide ATM network that all the participating companies as well as companies in other industries could use, he said.

According to Beering, the demonstration was not without its minor glitches. The voice portion of the transmission wasn't always clear, he said, but "visually, it was spectacular."

He added it could be 18 months to four years before a commercial version of the system is up and running.

FedEx pursues a different type of data distribution using object-oriented technology. See page 87.

Two-way messaging on the way for pager users

By Mindy Blodgett

Busy mobile users addicted to their pagers have a new game: two-way messaging.

This week, SkyTel Corp., the nation's leading paging service provider, will be the first company to offer two-way messaging over narrowband personal communications services (PCS). The service will be available over Motorola, Inc.'s messaging device, Tango.

SkyTel's two-way messaging *will be available on Motorola's Tango*

Currently, Tango users can't write original messages. Instead, they can send multiple-choice messages or one of 16 predefined responses, including "On my way" and "OK." They can customize the canned responses, however.

Users of Hewlett-Packard Co.'s 200LX personal digital assistant (PDA) will be able to connect to Tango for more advanced two-way, palmtop messaging. Free-form responses will be featured in that service.

Ahead of the game

Roberta Wiggins, an analyst at The Yankee Group, Inc. in Boston, said SkyTel has several months' lead time on other companies, including Paging Network, Inc. in Plano, Texas. PageNet also plans a two-way messaging service on narrowband PCS.

Wiggins said two-way paging users soon will want more than just canned responses from devices such as Tango. Motorola and SkyTel are working on a device that would let the user compose original messages.

To succeed in the market, Wiggins said, "the narrowband PCS providers have to stay within the paradigm of ease of use and affordability. [SkyTel's] service looks to be priced well."

One user who has tested SkyTel's new service calls it addictive.

Amin Abdulla, director of information technology at the McGregor Medical Association in Houston, said two-way paging has vastly improved productivity at the organization.

"We have already become really dependent on it," Abdulla said. "You don't have the inconvenience of having to find a phone or wait too long for a response. You can just message someone 'Out of here,' and it's easier to keep track of people."

Tango is available for $400 through SkyTel, which will use Sony Corp.'s Wireless Telecommunications Co. as a distributor. It can also be leased for $15 a month, plus a $25 basic monthly service charge. Pricing for other features, such as roaming, will be available soon.

Hewlett-Packard's 200LX PDA can be leased from SkyTel for $49.95 a month. That price includes the cable needed to connect to Tango.

SAP to showcase R/3 Release 3.0

By Julia King

Simpler, more graphical user interfaces and workflow capabilities are among the features that SAP AG will highlight this week as it finally takes the wraps off Release 3.0 of its R/3 client/server software.

At the company's annual users conference in Phoenix, dozens of other software vendors will also get into the act, demonstrating SAP-certified applications that can communicate with R/3 via Release 3.0's new Applications Linking and Embedding technology, or ALE.

Client/server software

Other new features SAP has incorporated into Release 3.0 include the following:

- Support for electronic commerce
- Multiple language and parallel currency capabilities
- A more robust payroll application with support for all U.S. payroll requirements.
- Better intercompany communications and data exchange support

Additionally, R/3 has a new Capital Investment Management application in the system's financials module. For users in the manufacturing industry, there is also a new module for exchanging data with shop-floor machines.

But analysts and users said it is R/3's new embedded workflow and ALE capabilities that are most likely to steal the show.

Last month, Lisa Florreich, a business design team manager for R/3 at Chevron Corp., a Release 3.0 beta site in San Ramon, Calif., described ALE as "a much slicker way to move data from one SAP database to another." Among other things, ALE makes it easier to maintain master data, she said.

For instance, at companies with distributed sites, ALE will allow remote users to tap in to a single, central R/3 database.

ALE also enables third-party software applications to communicate with R/3. Vendors whose systems can be tied into R/3 via the technology include Manugistics Group, Inc., which makes supply chain management software and AVP Systems, a Salem, Mass.-based maker of sales tax software.

With an eye toward growing its presence beyond the largest corporations, SAP AG is porting its R/3 software to midrange hardware platforms. Last week, SAP announced a mid-1996 ship date for Release 3.0 on IBM's AS/400 platform. Earlier, this month, SAP announced R/3 support for Microsoft Corp.'s SQL Server 6.0 database, which runs on Windows NT.

To reduce the time it takes users to upgrade between R/3 versions, SAP is also delivering what it calls a replication switch as part of the new release. The switch carries forward users' custom configurations in the upgrade process.

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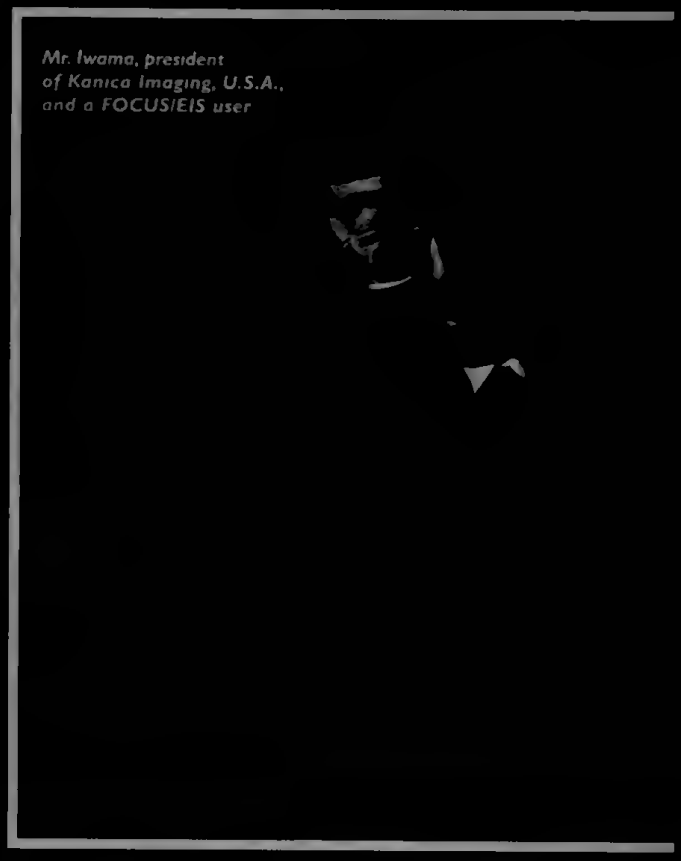

Mr. Iwama, president of Konica Imaging, U.S.A., and a FOCUS/EIS user

Carmine Morello
IS Director
Konica Imaging, U S A

ESP It's an abbreviation for "Encouraging, Striving, Providing"... the company motto for Konica Imaging, U.S.A. It's also the name of Konica's new suite of killer apps for decision-support developed in just 10 weeks using FOCUS/EIS for Windows.

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pentium

Fore tees off Ethernet game

By Bob Wallace

ATM kingpin Fore Systems Corp. made its first foray outside the ATM switching market with the introduction last week of an innovative and low-priced Ethernet switch. The switch will let users migrate gradually to Asynchronous Transfer Mode (ATM) networks.

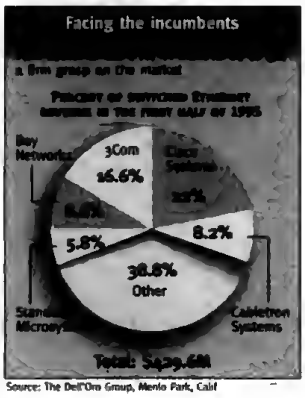
Analysts had long criticized Fore's strategy of selling its ATM wares almost exclusively to a members-only club of users with the highest-end and most demanding data applications, while ignoring the broader networking market.

But the vendor changed that with the ForeRunner ES-3810, a feature-rich, low-priced and scalable Ethernet switch that some users lauded as an easily justifiable on-ramp to ATM backbone networks. Fore has a big lead in ATM switches, which switch data at high speeds in fixed-length cells.

"The new switch made Fore the only single vendor that could provide us a growth path from our overburdened Ethernets to Ethernet switching with tie-ins to ATM backbone and wide-area switches," said Daniel J. Valentino, a member of the radiological sciences unit at the University of California at Los Angeles.

The UCLA unit needs Ethernet switching first and ATM soon after. "Our [shared] Ethernets can't handle the huge amount of imaging traffic we need to move, and we'll need ATM switches to move traffic over a wide-area network to remote clinics," Valentino explained.

Fore's acquisition of widely known Ethernet switch vendor Advanced Network Technology, Inc. (ANT) in May made the product launch possible. It gives Fore a technology differentiator when it comes to switch management.



Source: The Dell'Oro Group, Menlo Park, Calif.

The ANT approach relies on advanced features built in to each switch port, which obviates the need for users to buy expensive Remote Monitoring (Rmon) probes to check traffic. This can save users thousands of dollars.

The new Fore switch can be scaled from 16 to 72 switched Ethernet ports, with the management functionality included in the price of the product. A 24-port unit is $5,995, or roughly $250 a port.

"Fore and Cray [Communications Corp.] are the lowest-priced Ethernet switches which support all nine Rmon groups," said Michael Howard, president of Infonetics Research, Inc. in San Jose, Calif.

A fully loaded system with 72 switched Ethernet ports and two 100Base-T uplinks costs $15,080, with a switched Ethernet port price of about $194. The switch is available in other configurations, all of which are shipping now.

The cost per port "had to be much more affordable than the cost of putting in a bridge/router to segment networks," Valentino said. "And obviously the lower the price, the more attractive the product becomes."

For ES-3810 users who must have ATM connectivity, Fore will make 155M bit/sec. ATM uplinks that can be used to link with ATM switches, ATM backbone networks and/or servers with ATM interfaces.

ATM users find help breaking out of proprietary traps. See page 67.

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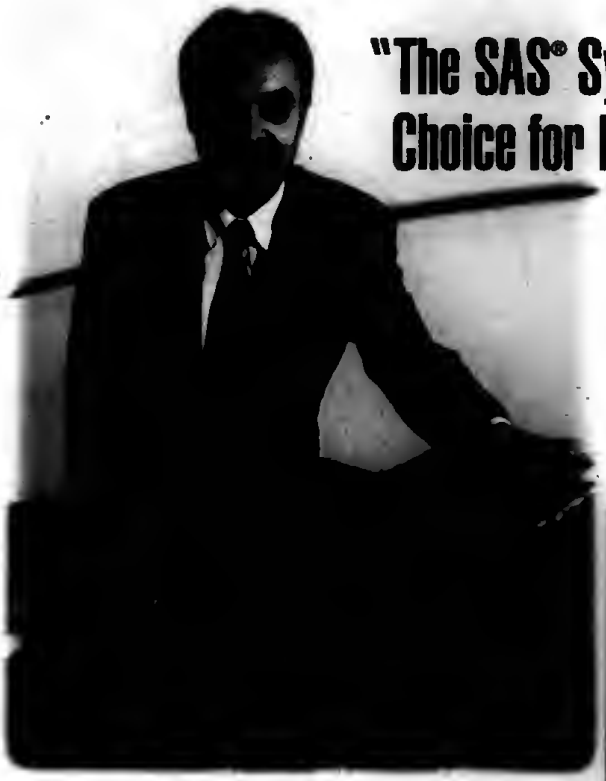

Moser contends that using the SAS System has also turned traditional developer/end user wars into "a cooperative process. Now they sit side by side, building the application together." And saving the bank both time and money.

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They're finding answers in the SAS System, which enables over 70 financial analysts to advise portfolio managers on the best portfolio mix. "Our strategy is to find ways to enable analysts and financial advisors to handle information more easily and quickly," says UBS Vice President Beat Moser. "What that meant was finding a software tool that could eliminate the redundancy of information and time caused by the use of several different analysis products—each limited in terms of functionality and ability to access key data. And it meant finding a tool that allowed applications to be developed, and changed, fast."

Smart Move, Smart Money Moser believes that UBS has resolved those challenges in their choice of the SAS System as their strategic software. "Our previous system required many labor-intensive steps as data was moved from one software product to another," recalls Moser. "Today data access, management, and summarization is handled automatically by the SAS System. This has given us productivity gains of up to 200% in some areas. The SAS System is fully integrated and meets most of our analysis needs—it's our strategic choice in various research units of our bank."

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Feds limit info warfare role

By Gary H. Anthes
ARLINGTON, VA

Despite cries for help from U.S. corporations, senior intelligence and law enforcement officials stress that their agencies will not engage in industrial espionage against foreign companies or countries.

Yet the officials said they are beginning to more systematically and aggressively alert U.S. companies about threats against them. Now that the Cold War is over, they are more willing to help businesses outside the military arena.

"I think there's a new attitude coming," said former CIA Director William Colby, who addressed some 600 attendees at the Third International Information Warfare Conference held here recently.

"There is a much more vigorous attitude by our government in helping U.S. businesses," Colby said.

Industrial espionage is just one form of "information warfare," which includes activities such as pilfering company secrets by hacking into computer networks and stealing funds electronically.

"The industrial espionage problem has gotten so large [that] without the help of the U.S. government, industry will find it difficult to cope," said Eugene Schultz, deputy program manager at the International Information Integrity Institute of SRI International in Menlo Park, Calif. "The CIA has especially strong qualifications to help."

Colby said the U.S. is and should be doing more in counterintelligence. This is when agencies look for and report illegal activities abroad. He also noted how intelligence is being "privatized" by legions of consultants with huge databases of information — available for a price to all comers.

When a threat surfaces against a U.S. company, the CIA sometimes warns the firm in question, usually via the Commerce Department, said U.S. Navy Adm. William O. Studeman, deputy director of the CIA.

For example, when the U.S. recently became aware that a French firm had won a contract by bribing a Brazilian official, the U.S. notified the French and Brazilian governments. The contract was subsequently canceled and awarded to the U.S. company.

Many in the U.S. believe that governments in the Far East and Europe use their intelligence agencies to spy on U.S. firms. While some of these critics would like U.S. agencies to do the same, Studeman was adamant on that point. "We have made our policy clear. There will be no industrial espionage, no stealing of intellectual property," he said.

The FBI has agents in 56 field offices who are specifically charged with watching out for corporate America's counterintelligence concerns. They are part of the FBI's Development of Espionage, Counterintelligence and Counterterrorism Awareness unit (DECCA).

Larry Watson, director of DECCA, said the unit is becoming more aggressive in getting the word out to industry about threats to information systems.

Some FBI alerts are very specific, such as one recently that warned a New York company that its systems were being penetrated by foreign interests. "U.S. national security interests and economic interests are tied together," Watson said.

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CONTINUED FROM PAGE 1

which is based in nearby Ann Arbor, Mich.

"I can't tell you how absolutely critical good, dependable support is for big client/server systems," said Ritch Gaiti, director of advanced office systems and technology at Merrill Lynch. "It's a make-or-break issue."

It may be somewhat unfair to expect a database company to do it all. And database makers aren't the worst support offenders in the industry. However, if they are to be the de facto point men for client/server support, they have some key problems to work out, users and analysts said.

COMPUTERWORLD SPECIAL REPORT

Database support

Hot ticket

Pricing is one hot potato. Fees for low-end database package support, a relatively new market for Oracle and its rivals, are out of whack with similar programs from traditional PC software makers.

For example, Oracle's Personal Oracle7 desktop database license costs $399. Yet basic technical support costs $550 per copy. A year of support for Sybase's desktop database is $4,000 or 30% of the product's list price, whichever is higher.

Support prices for comparable PC databases, however, are generally much lower. Microsoft Corp., for example, offers per-incident fees where Access database users are charged a maximum of $25 per call.

Another, and perhaps not surprising, issue is that support quality slips markedly when problems involve other hardware and software products that interact with the database, users said.

Indeed, a significant share of users polled expressed disappointment in the ability of database vendors to play well with others.

While 38% of those surveyed said they were satisfied with their database supplier's willingness to intercede with other vendors to solve urgent problems, almost as many users — 37% — rated their database company as less than satisfactory in this area. The remaining 25% didn't know.

Solving problems that affect other products in a client/server system "is the biggest challenge we face," acknowledged Jim Hendrickson, vice president of customer support at Informix in Menlo Park, Calif.

As a result, Informix has changed its hiring practices, Hendrickson said (see story at right). Before client/server took hold, Informix recruited support workers with narrow technical knowledge, he said. Now the vendor searches for people with broad analytical skills.

"There are no rote answers anymore," he said.

Overall, pricing and quality of database customer support is a mixed bag, said Linda Morison, vice president of the International Sybase User Group and a database administrator at an East Coast defense company.

"You've got so many [technology] variables, combined with the particular strengths and weaknesses of the person you happen to get on the phone when you call," she said.

Users surveyed by *Computerworld* said the three most important actions database companies can take to make them happier are the following:

- Return support calls faster.
- Provide clearer, more succinct manuals.
- Build cleaner, less buggy products.

Merrill Lynch's Ritch Gaiti *says dependable support is critical for big client/server systems*

Asking too much?

Another issue for some users is that so-called client/server vendors can't match the support of mainframe companies.

"When we had a [mainframe] problem, we had the vendor on the phone in five minutes," said Jeff Hugie, director of data architecture at American Express Travel Related Services Co.

In the client/server realm, "it takes support an hour to get back [to] you with the right person," Hugie complained.

In Hugie's group at American Express last year, mainframe systems sailed smoothly 99.33% of the time. They were up and running 8,701 hours out of 8,760 hours, he said.

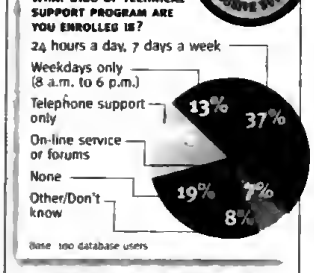
Hugie couldn't provide comparable figures for his client/server systems, in part, because his unit has been deterred from implementing such applications — and the databases that support them — due to poor reliability compared with mainframe setups.

"You just don't see anything like that in client/server systems," he sighed.

While most users turn to their database vendor for support . . .

COMPUTERWORLD User Pulse EXCLUSIVE SURVEY

WHAT KIND OF TECHNICAL SUPPORT PROGRAM ARE YOU ENROLLED IN?



Base: 100 database users

. . . there are still some who go elsewhere

WHERE DO YOU GET YOUR TECHNICAL SUPPORT FOR DATABASE SYSTEMS?

Base: 19 database users not enrolled in a support program

@ Talkback@cw.com

What kind of value are you getting for your support dollars? What's the best or worst experience you've had with a customer support call? Sound off to us at talkback@cw.com. Please include your full name. We'll publish a sampling of reader opinions in an upcoming issue.

Facing up to their demons

The top-tier relational database makers each face a specific set of problems in improving their overall client/server support programs.

• Informix is one supplier that has come a long way in the past two years, after being roundly criticized by its customers for slow response and ill-trained technical people.

Informix tackled the problem, in part, by changing its hiring practices and requiring new support engineers to have at least six to 10 years of experience, said Jim Hendrickson, vice president of customer service at the company. Previously, support personnel typically were fresh out of college or had only one or two years of experience, he said.

• Oracle, meanwhile, has fixed some problems with its support organization over the past year to 18 months, but work remains, users said. They worried that Oracle is too diversified for technical support staffers to keep up. The Redwood Shores, Calif.-based company has dipped its toes into everything from single-user PC databases to deals with The Disney Co. for interactive TV systems.

This isn't a problem, an Oracle spokesman maintained, saying that the companies' "several thousand" customer support workers "are focused and knowledgeable."

• Sybase is working to quell talk that its support staff hasn't been able to keep up with the company's five acquisitions in less than two years. For example, Powersoft Corp., which Sybase bought in December, uses a homegrown, customer support program that isn't yet fully integrated with Sybase's off-the-shelf system from Clarify, Inc.

But users said they like Sybase's customer support better since the vendor began work last year to meet the rigorous quality goals of the International Standards Organization's ISO 9000 rules, said Louis Muggeo, vice president of worldwide technical support operations at Sybase in Emeryville, Calif.

As proof, Sybase claimed that internal surveys conducted quarterly show that 86% of roughly 150 users chosen randomly said they were satisfied with support in this year's first quarter, vs. 78% in the first quarter of 1994.

— Kim S. Nash

Tips for getting the most from your database vendors

Database makers certainly have some deficiencies to overcome in providing smooth customer support, but users aren't without fault.

Users pleased with the technical service they are receiving offered the following advice for those seeking more from database vendors.

• First, prepare before dialing that toll-free number.

Document the steps already taken to fix the trouble in-house, and know how to describe the situation in terms both you and the engineer can understand.

"Don't be insulted if they want you to prove what you've done to solve the problem yourself," advised Linda Morison, vice president of the International Sybase User Group.

• Second, understand the parameters of your company's support package.

Some users call technical support lines with no idea as to the support package their company bought. Then they get mad when the engineer on the other end won't overstep boundaries, said Cynthia Wilson, director of enterprise information management and technology at Merrill Lynch.

• Finally, don't cry wolf.

Every vendor has its own system of prioritizing technical problems. Telling a harried support worker that your situation is mission critical when it isn't helps no one. And you get a bad reputation. *— Kim S. Nash*

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Computer Industry

MCI attacks customer service with internal IS solutions

By Mindy Blodgett

Like many telecommunications companies these days, MCI Communications Corp. is reinventing its operations. But by using its internal information technologies to improve customer service, industry observers say MCI is trying something new.

Leading the charge is John Gerdelman, 42, who recently became chief information officer and head of MCI's wireless division.

Gerdelman also oversees all client/server, midrange and mainframe computing environments. His orders are to integrate those systems within the company. The goal is to link information technology more closely with the network in order to support MCI's products, including evolving corporate offerings.

Gerdelman is president of MCI Network operations, a role he will retain. On Aug. 30, the $3.7 billion telecommunications firm announced a restructuring plan under which it consolidated the core communications business under MCI Telecommunications Corp. Ventures, alliances and new businesses will be managed under MCI Ventures and Alliances.

As CIO, Gerdelman takes over MCI's computer networking functions and advanced systems that handle products such as MCI Friends & Family, customer service and telemarketing.

He will oversee approximately 13,000 of the company's 45,000 employees, including about 5,000 information systems workers.

By converging the internal information system with the customer network, MCI hopes to remove duplications and make the entire operation more efficient, Gerdelman said.

MCI's John Gerdelman *seeks to make operations more efficient. In August, MCI reported $3.7 billion in revenue for the quarter, an increase of $397 million, or 12%, over the same period a year ago.*

"One of the challenges we face is how do we share these tools between the two worlds?" Gerdelman noted. "We are a telephone company, but we have been moving rapidly to using the Internet [and] TCP/IP internally. That way, all the power of client/server is available to everyone."

On the wireless side, Gerdelman will preside over MCI's merger with Nationwide Cellular Service, inc., the nation's largest cellular reseller. MCI also plans to broaden its cellular and paging services.

A 10-year veteran of MCI, Gerdelman said he isn't daunted by the myriad tasks associated with his new roles. His responsibilities take advantage of his background in systems and marketing knowledge, according to company officials.

What lies ahead

Jeffrey Kagan, an analyst at Kagan Associates, inc. in Atlanta, said combining the information technology network with customer offerings is the wave of the future.

Gerdelman said MCI eventually would like to expand its wireless data offerings. "But we are waiting the market out," the CIO added. "There is a lot of chaos out there right now, and we are not interested in spending billions of dollars to help sort it out."

Through agreements with several cellular operators, MCI said it has access to more than 75% of the U.S. population for cellular phone service. MCI's paging service has averaged more than 60,000 devices each month, making it the second-fastest growing provider of paging services.

MCI uses bandwidth from a cable company for its telecommuting trial. See page 67

National Semi signs Ellen Hancock

Ellen Hancock, who in January left her high-profile job as head of IBM's software and networking units, turned up last week at chip maker National Semiconductor Corp.

At National, she will be an executive vice president in charge of networking, communications and multimedia technology.

One of the highest-ranking women in the computer industry, Hancock will also share the title of chief operating officer with two other National executives. Her hiring is a key part of the Sunnyvale, Calif., company's attempt to move up in the networking food chain by shifting from its chip origins to more of a system-level approach.

National's Ellen Hancock *says she remains a strong proponent of ATM and multimedia technologies*

"I don't necessarily claim any skills in the semiconductor industry," Hancock admitted. But National is setting its sights higher, "and that's where my background kicks in," she said. While National sells to other vendors rather than end users, Hancock said she hopes to continue meeting with the corporate contacts she cultivated at IBM. "We need to have a window into that world," she said.

—Craig Stedman

Small players take low-cost route to win over OCR users

By Tim Ouellette

You may have to squint to recognize some of the competitors in the optical character recognition (OCR) market.

That is because Caere Corp. in Los Gatos, Calif., and Xerox Corp.'s Xerox Imaging Systems group in Peabody, Mass., hold most of the market right now. For example, late last year Caere purchased Calera Recognition Corp., its main rival, leaving most other vendors in the dust. Since then, Xerox has made a strong push with its TextBridge software and gained a respectable second-place position.

Smaller competitors, such as Ligature, Inc. and Maxsoft-Ocron, inc., are also trying different tactics to attract more users.

Optical character recognition

OCR software takes the scanned image of a document and transforms the picture into usable data. The software is an important part of imaging systems, letting users manipulate the data found in these files without manually re-entering the information.

"The industry is changing in that many users want to have OCR capability, but their interest isn't so great that they are willing to pay $500," said Kristy Holch, an analyst at BIS Strategic Decisions in Norwell, Mass., who covers the OCR market. Vendors will be seeking to offer a very low-cost product and the opportunity to upgrade features as users become more proficient, she said.

Ligature in Burlington, Mass., has begun competitive upgrades for users of other OCR software. Users of any OCR software package can show a proof-of-purchase to receive Ligature's CharacterEye Pro for $149, usually sold for $495.

And Maxsoft-Ocron, based in Fremont, Calif., is bundling a small desktop scanner from Umax Technologies, inc. with its OCR software and development tool kit into a product called ClientVision.

Ligature is also trying to gain a footing in the resoller channel and recently signed a distribution agreement with Top Image Systems, an Israeli image enhancement firm.

Users in the imaging market seem impressed.

"It kind of blew us away, compared with other real expensive software," said David Childers, information systems manager at Entech, Inc. in Greenville, S.C., a high-volume image capture firm. CharacterEyes performed very well, he added, and "doesn't cost two arms and your first born."

But even with this promotion and a push to sell through more systems integrators, it will be an uphill battle for Ligature, Holch said.

Looking good

With 14 million unit sales expected by 1999, the OCR market should have more room for competing vendors for the following reasons:

- An increasing number of scanners in use along with decreasing scanner prices
- Falling OCR software prices
- Improved image recognition
- Expanded OCR engine platform support and power

Source: BIS Strategic Decisions, Norwell, Mass.

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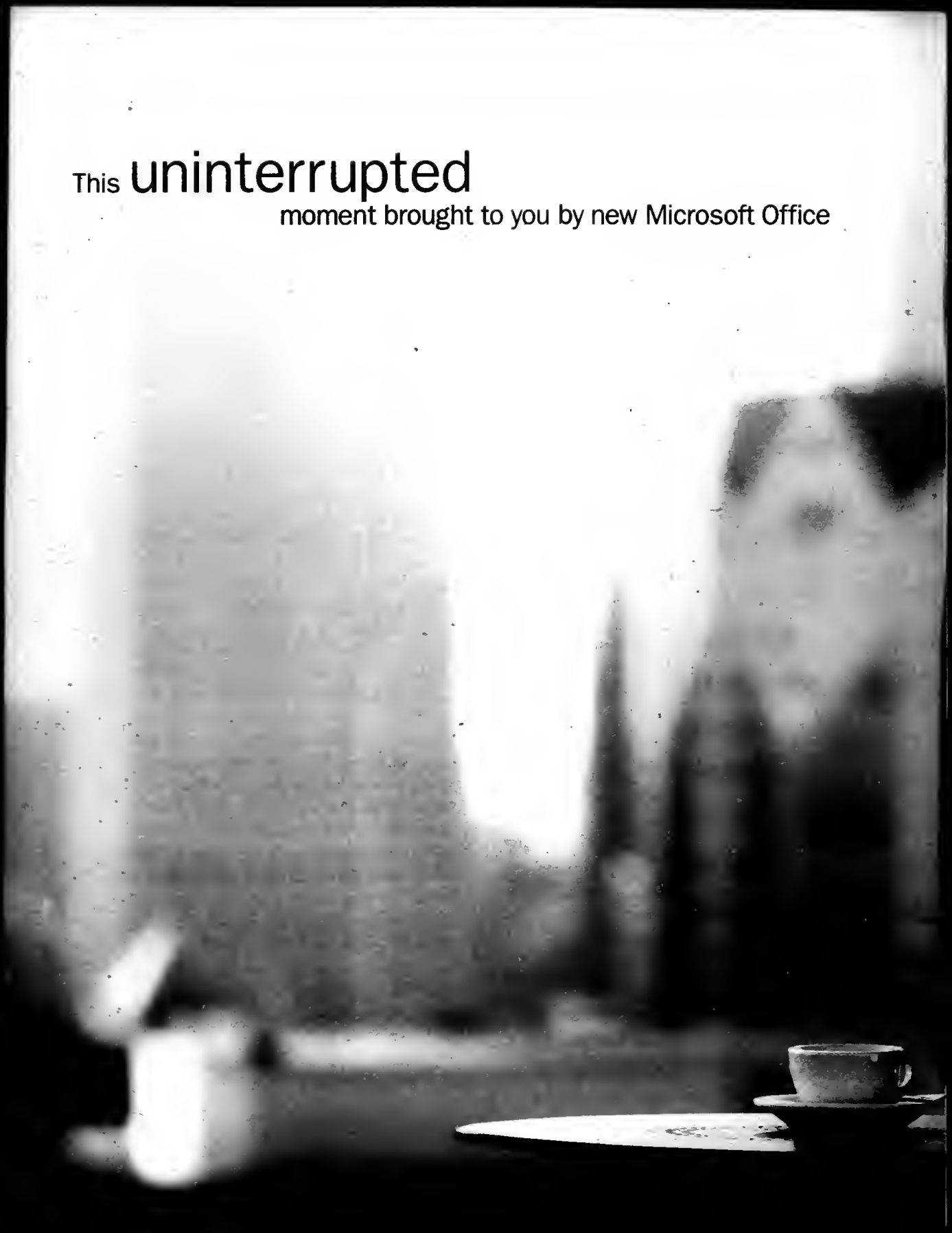

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We goofed

Computerworld maintains a formal set of policies and guidelines governing our editorial conduct. These guidelines encompass virtually all of our editorial activities.

As with any other set of policies, ours is only as good as our consistency in following it. We are human, and sometimes we make mistakes.

In a front page story last week featuring a comparison of IBM's OS/2 and Microsoft's Windows 95, we screwed up. In brief, we did not adequately follow our own guidelines for quality assurance in hatching such product comparisons. The result was a product comparison that had one very obvious inaccuracy relating to OS/2's support of long file names.

Because we did not follow our own procedures for quality assurance, we cannot fully stand behind what we printed and need to revisit the product comparison anew at some future date.

This is in no way meant to impugn the reviewer, Timothy Trimble, who did as he was guided to do by our editors. We should have guided him differently and instructed him differently. That's our fault.

We should have edited the story far more carefully and judiciously than we did; our editing was not up to *Computerworld* standards. Again, our fault, our responsibility, not that of the reviewer.

We also have a rule stating that we will make prompt and complete correction of errors. We are doing this, starting with this editorial. Next week's issue will include a front page reference to a page of letters from some of the many readers who have written us about the product comparison (see also letter at right). Finally, and most important, we will make arrangements for a new, comprehensive product comparison of Windows 95 and OS/2 to run sometime later this fall — this time in accordance with our guidelines and also up to *Computerworld* standards.

We are very sorry for this unfortunate and, for *Computerworld*, unprecedented event.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *bill_laberis@cw.com*

OS/2 reviewer clearly wrong

I was shocked after reading the misinformed product comparison between OS/2 Warp and Windows 95 in your Sept. 11 issue ["Win 95 beats OS/2 Warp"]. The reviewer clearly knew little or nothing about OS/2.

He says he "installed a DOS game, and it failed to run properly." Come on. OS/2 is optimized for the Top 100 DOS games as well as the most popular DOS-based business applications and provides numerous customization options in fact, OS/2's DOS compatibility is widely regarded in the industry as being better than DOS.

Your reviewer says OS/2 doesn't support long file names. With the High Performance File System, OS/2 pioneered the use of long file names for the Intel platform three years ago.

He says he had to reinstall SoundBlaster device drivers and reboot to change an interrupt setting, but he doesn't explain why. Because Windows 95 "sometimes" requires a reboot to change interrupt and "sometimes" can't keep track of shortcuts and original files, it doesn't make sense to give it the advantage.

Trimble says it was a "very easy process to overtask OS/2 and cause it to freeze." That's strange. Since March 1992, OS/2 has been able to run DOS, Windows and OS/2 applications in a separate memory space, providing unparalleled system stability.

Trimble's attempts to run SimCity 2000 for Windows failed. Had he simply clicked on "Add Products," OS/2 Warp would have automatically migrated the application and optimized the settings for SimCity 2000. Better yet, if he tried running Windows applications that *Computerworld* readers actually use at work, he would have seen the full extent of OS/2's ability to run Windows 16-bit applications better than Windows 95.

Dan J. Lautenbach
Vice President
IBM Personal Software Products
Austin, Texas

Tried and true

With reference to your article about OS/2 referring to the recent speech by Lou Gerstner ["Et tu, OS/2?" CW, Aug. 7], I compliment you on your careful analysis of the speech and the market before coming to conclusions.

IBM hasn't matched Microsoft's penetration of the home and small business market with OS/2. However, in the corporate world, OS/2 use is growing due to the system's technical superiority over Windows 3.1 and Windows 95. The overriding need in enterprise computing is to connect workstations and legacy systems. You very nicely summarized the issue, which is that OS/2 works.

OS/2 is tried and tested. It is a proven 32-bit system. Even Bill Gates recommends choosing Windows NT for its architectural and technical superiority over 16-bit Windows in enterprise settings. Microsoft has set up a separate business unit dedicated to selling NT for the enterprise market.

Ironically, Microsoft may actually help differentiate these major market segments, thereby positioning OS/2 as a major player. The question is whether IBM will recognize this rare opportunity and take full advantage of the enormous lead OS/2 has in 32-bit enterprise computing.

Terry Golesworthy
President
Intelligent Environments, Inc.
Burlington, Mass.
TERRYGOLESWORTHY@ieinc.com

Unfair advantage?

It is interesting that the Big 3 online services are so concerned about Microsoft's supposed unfair advantage with The Microsoft Network bundled with Windows 95. My recently purchased Gateway 2000 system came preloaded with America Online, Prodigy and CompuServe, and so did my friend's new Dell machine. Haven't the three services already been enjoying the advantages that Microsoft wishes to partake of by loading their software on the hard drives of so many new systems?

John R. Zimmerman
Southington, Conn.

More letters, *page 41*

■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Verbatim

FROM "THE FUTURE OF COMMUNITY AND PERSONAL IDENTITY IN THE COMING ELECTRONIC CULTURE," A REPORT PUBLISHED BY THE ASPER INSTITUTE'S COMMUNICATIONS AND SOCIETY PROGRAM IN WASHINGTON:

When does technology enhance the richness of life and when does it diminish life? The use of sophisticated technologies, by itself, is not necessarily more satisfying to people. Consider the naive fantasies of some technologists who aspire, for example, to install card-swiping credit-card machines everywhere (ski lifts, vending machines), ostensibly to make transactions more convenient. Is that what people want? "No," suggested Dr. Michael Hawley, assistant professor of computer science and engineering at MIT. "People want a system that knows something about them and has a little personality — like the doorman whose job it is to remember your name."

FROM "THE POTENTIAL DOWNSIDE OF THE NATIONAL INFORMATION INFRASTRUCTURE," A REPORT BY STEPHEN BATES AT NORTHWESTERN UNIVERSITY'S ANNENBERG WASHINGTON PROGRAM IN WASHINGTON:

Some futurists predict that the Internet will spark a populist political revolution. "I can understand why people fantasize like this," said Michael Cornfield, a professor at George Washington University's School of Political Management. "But the Internet will no more pull Americans into politics and transform the government than did public-access cable television."

The Internet provides what Cornfield called "faux populism," feel-good participation devoid of responsibility.

He suggested that the Internet's pseudopopulism could distract people from "the kind of politics that really matters: party politics, interest group politics, grassroots organizing."

Play the name game

Michael Gentle

IS projects live or die by their monikers. Nix the boring acronyms. How about Sapphire or Prometheus?

When Juliet said to Romeo in the balcony scene, "What's in a name? That which we call a rose by any other name would smell as sweet," she certainly wasn't referring to information systems projects. Names can make or break IS projects.

What you actually name a project, especially a biggie, will go a long way in determining how much initial funding and corporate visibility it's going to get and — when the going gets tough — how much bailout money the company will feel compelled to sink into it to preserve credibility.

If your intended breakthrough sales force automation or 24-hour customer service project is code-named SFA or CS24, don't complain if it doesn't get funding, visibility and support. However, with names such as Symphony, Omega or — drumroll — Prometheus, which inspire security, confidence and vision, you can count on getting a much better hearing and ensuring that the CEO shells out for as long as it takes.

Besides, would you rather be associated with project Sapphire or project R2-D2? Most important, an inspirational and visionary name will help to recruit your key executive sponsor, who will promote your project in the boardroom. Yep, if you want to launch with fanfare, adequate funding and all the right people, get the name right.

Ok, so about nine months down the line, with the euphoria stage long gone, the practical problems have been identified, the initial deadline is no longer realistic and more money is needed. Well, no problem here.

While some dumb-sounding R2-D2 project would be scrutinized — maybe even canned — the visibility and commitment associated with your high flier will ensure you get bailed out the first time with hardly a murmur of protest. Eventually the runaway project might fail, but it certainly won't be for lack of funds!

So now that you're convinced that good name branding is an essential part of Project Marketing 101, you'll want to be careful about choosing one. If your big project makes it to the press, a journalist should be able to string together a cute headline ("The MIDAS touch!"). But be careful. If your project goes awry, you can count on the same journalist to hang you ("MIDAS — or fool's gold?").

The following are some naming conventions to consider and some to avoid:

- Sure-fire winners are names from Greek mythology, such as Zeus, although you'll want to stay away from overused gods like Atlas and Apollo.
- Relatively safe are the classical composers (Bach, Schubert), but shy away from Mozart, Amadeus and Vivaldi, which are so common that it shows a lack of culture.
- Risky but still manageable choices are jewels and precious metals, such as Emerald, Ruby, Diamond and Gold.
- Avoid like the plague the names of planets (Saturn, Mars) and cutesy industrial acronyms such as Fast, Core and Force, whose mileage went out with the '60s.

Finally, you'll want to be sure the name can travel. It's so easy to end up embarrassed, especially here in Europe.

You won't endear yourself to your executive sponsor once he becomes the butt of endless boardroom jokes about the time he brought the Spanish management team to howls of laughter when unveiling the new system code-named Nova. In Spanish, it means "no go."

Gentle is an information technology project manager at SmithKline Beecham Pharmaceuticals in Paris. His Internet address is 100727.2071@compuserve.com

Nice try, but NT is not 'open'

Richard H. Jaross and Michael Tilson

The recent multimillion-dollar award by the U.S. Coast Guard to Unisys for computers running Microsoft's Windows NT operating system has generated a wave of protest and confusion. Buyers of information technology may have a tough time separating fact from fiction in this case.

Computerworld's article "Feds declare NT 'open system', Unix takes a hit" [CW, July 31] blurs several issues in the controversial award and subsequent protest of it by competitors. It is misleading to equate "Posix compliance" with "open systems." Microsoft has disguised NT, its proprietary operating system, as "open" by adding on a Posix module that will never be used to run real applications.

Even if it meets the letter of the Coast Guard's request for proposals — which we doubt — the presence of this module evades the original purpose and spirit of open standards. It doesn't make NT a Posix-compliant operating system, much less an "open system."

The Microsoft Posix module may indeed pass some Posix tests, but NT won't. The applications being used in this procurement won't be running under the Posix module. Therefore, this award undermines the federal government's efforts to create standards-based, competitive information technology procurement.

Think of it this way: For government procurements, Microsoft puts two operating environments in the box. One is Windows NT and the other is a Posix module that the government will purchase but never use. What does it matter if the Posix module can pass some tests? In the actual deployment, you might as well save disk space and just throw it away.

In a real open system, the applications architecture actually uses the open standards. Openness promotes vendor competition, which offers real choices to buyers. Users may switch platforms as their needs require. Porting applications is relatively easy from one open system to another — and far less expensive than rewriting code and porting between proprietary systems.

And remember, competition is most important in the software platforms. Investments in software are far longer-lasting than hardware, so the decision to lock into a single-vendor solution is very significant and can be undone only at great cost and effort.

Windows NT is an operating system that is less than two years old. In contrast, the shared development model observed for 25 years among vendors of Unix systems has produced a stable, highly scalable operating system; the de facto standard TCP/IP networking protocols; and a robust, widely implemented windowing system called X. These and related technologies, including the Internet, provide a range of cost-effective options for information technology users. Nothing stops Microsoft from converting NT into a real open system. They haven't done so with the dysfunctional Posix module. To date, the U.S. government has been served well by open systems. But this award is a sham, and it shouldn't be allowed to stand.

We urge the Coast Guard and the U.S. General Services Administration to rethink their positions.

Jaross is executive director of the Uniform Association in Santa Clara, Calif. Tilson is CIO at The Santa Cruz Operation and president of the Uniform Association.

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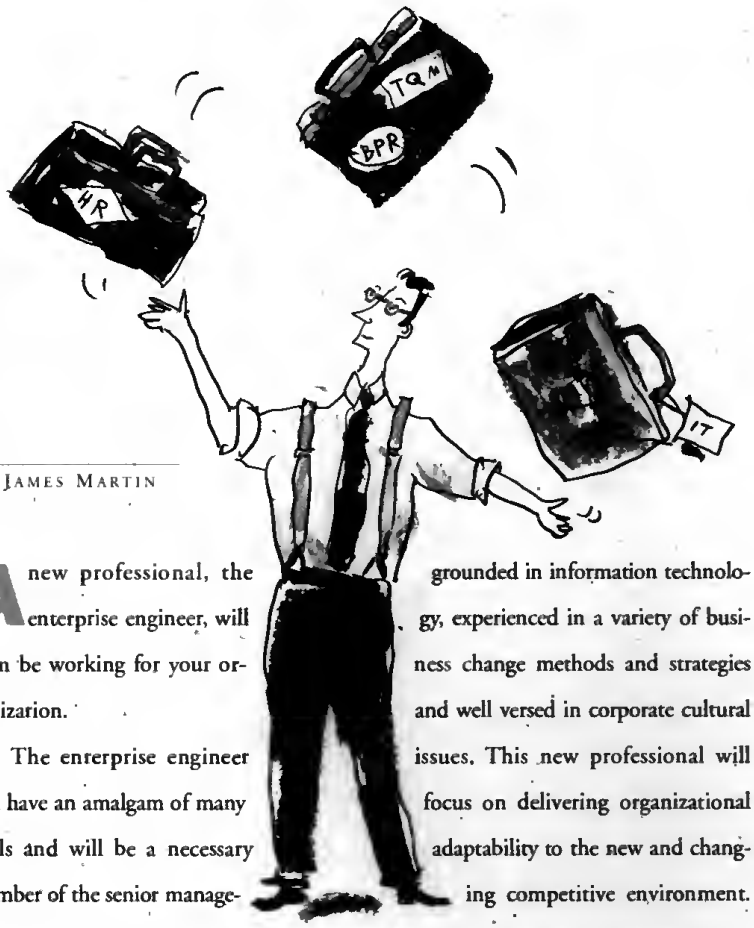
COMPUTERWORLD

·*Leadership Series*·

The Enterprise Engineer



BY JAMES MARTIN

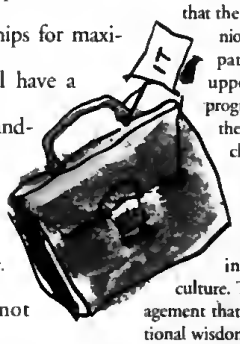
A new professional, the enterprise engineer, will soon be working for your organizarion.

The enrerprise engineer will have an amalgam of many skills and will be a necessary member of the senior management team in any successful information-age organization. He will be firmly grounded in information technology, experienced in a variety of business change methods and strategies and well versed in corporate cultural issues. This new professional will focus on delivering organizational adaptability to the new and changing competitive environment.

From wholesale re-engineering to process tweaking, the enterprise engineer

All companies need an individual who understands IT, corporate culture and business change models. [illegible] unheard of today, will be an essential member of tomorrow's senior management team.

will have a deep-seated, holistic understanding of the way the organization works. He will have a grasp of the big picture, managing organizational relationships for maximum efficiency. He also will have a firm hold on details, understanding individual processes and knowing which process-change tools to use at any time.



The consequences of not having an enterprise engineer are evident in the horrifying amount of business re-engineering that is done with the wrong strategic vision and in the amount of IT development that is done with the wrong business process design. In 1994, U.S. companies spent about $32 billion on re-engineering. Approximately 70% of all re-engineering falls short of its stated goals, according to Michael Hammer, a founding father of business process re-engineering (BPR).

Cover and inside illustrations by Diane Bagda

Qualifications for the job

The enterprise engineer's knowledge of business change, IT and organizational culture will come from years of experience. Typically, he will have been a consultant or have had several management jobs where he has implemented various IT and business strategies.

The enterprise engineer will combine the high-level technical knowledge of a chief information officer with the business savvy of the chief executive officer. He fits this position well because of his ability to balance the perspectives of the CIO and CEO in an unbiased, objective way. Ideally, he will be the perfect candidate to run the steering committee for a re-engineering project. In some organizations, the enterprise engineer will replace the CIO, in others the two will work hand in hand.

In his capacity as chief change agent, it is vital that the enterprise engineer has the respect of senior management. Division managers, department heads and other middle and upper managers will find ways to derail progress unless they are given a clear signal the CEO supports the enterprise engineer's changes.

It's advisable to hire the enterprise engineer from outside the organization, because managers and employees from within the company tend to be trapped in the company's thought patterns and culture. The new processes and changes in management that are needed must challenge the conventional wisdom, not reinforce it. Steam engineers didn't invent electric power, monks don't tear down monasteries.

Basic skills

While there is no cookbook formula for successful organizational change, the enterprise engineer must be proficient in two areas: First, he must understand new ways of organizing work flows and corporate architecture. Second, he must have experience in all the disciplines for changing an enterprise, ranging from small-scale continuous improvement techniques to the principles governing organizational overhaul.

The enterprise engineer must know how to design work flows so that work gets done as quickly and as efficiently as possible. In most organizations, this involves replacing the departmental, hierarchical structure with a team approach. A cross-functional "value-stream team" that is in control of its own activities, such as product design, is in the best position to decide the most efficient way of doing things.

To support these value-stream teams, the enter-

prise engineer must be instrumental in developing new information systems. Because each value stream has its own goals, senior management needs ways to monitor and measure its performance in a meaningful way. This includes devising systems that measure customer service, product development time, defect rates and customer retention rates.

The shifting boundaries of the enterprise are another factor that must be taken into account. Because control over processes no longer stops at the traditional edges of the corporation, the enterprise engineer must also consider relationships with customers and suppliers in designing new work flows. For instance, what information do customers and suppliers need from the company and what information does the company need that resides outside the organization?

While IT has made the modern enterprise possible, the enterprise engineer must respect organizational culture.

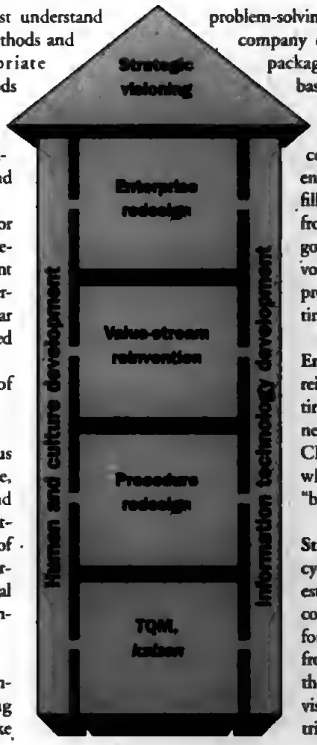
The enterprise engineer must be a willing scavenger, borrowing from other organizations and adapting processes to fit his own organization's needs. For example, a retailer looking to revamp its purchasing process could learn from companies like Con Edison, which redesigned its procurement procedures and reduced administrative costs by 80%. Likewise, anyone from a PC maker to a toy company can

THE TOOLS OF THE TRADE

The enterprise engineer must understand the spectrum of change methods and select the most appropriate method or combination of methods for the problem at hand. He must, however, do his job in the context of the company's information technology infrastructure and existing organizational structure.

Typically, re-engineering fails for one of two reasons: poor management of people or poor development and implementation of IT. The enterprise engineer can achieve spectacular results if people and IT are factored into process changes.

Here are brief descriptions of the tools he must master:



TQM, *kaizen* – Continuous change applied across an enterprise, focusing on individual tasks and improvements made by departments or teams. This is a family of techniques that includes quality circles, suggestion schemes, statistical quality control and diagrams for analyzing problems.

Procedure redesign – Discontinuous reinvention of existing processes geared toward quick-strike problem-solving and cost cutting. For instance, a company develops an order-entry software package to replace an existing paper-based procedure.

Value-stream reinvention – Discontinuous reinvention of a core end-to-end activity such as order fulfillment, which includes everything from order entry to the delivery of goods to the customer. This may involve replacing all of the paper-based procedures in this stream with a real-time electronic system.

Enterprise redesign – Discontinuous reinvention of the structure of an entire enterprise, focusing on creating new business units. General Electric's CEO Jack Welch used this method when he transformed GE into a "boundaryless corporation."

Strategic visioning – An ongoing cycle whereby senior management establishes an overall vision for the company and uses it as the context for dramatic change. Wal-Mart grew from a small southern company to the world's largest retailer through a vision for building an advanced distribution and logistics capability.

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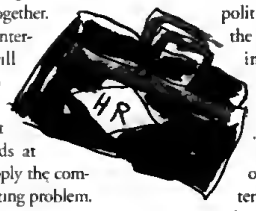
learn from the experiences of companies like Harley Davidson, which cut manufacturing time from 72 days to two days.

When it comes to changing an enterprise, the enterprise engineer needs to know how and when to apply each technique, model and discipline. These tools can be divided into four categories: total quality management (TQM) and *kaizen* (or continuous improvement), procedure redesign, value-stream reinvention and enterprise redesign. (See chart on page 3.)

For instance, there is a vast difference between W. Edwards Deming's TQM and Hammer's BPR. TQM keeps the existing business processes in place while making continuous improvements. BPR, which includes process redesign, value-stream reinvention and enterprise redesign, aims to scrap a business process end-to-end and start again.

Used on their own, both TQM and BPR have succeeded spectacularly and failed disastrously. Only recently have companies begun to use both change methods together. The experienced enterprise engineer will have the skill to cherry-pick procedures from the list of change methods at his disposal and apply the combination to an existing problem.



Navigating infrastructures

In addition to a firm grasp of the basic skills, the enterprise engineer must know how to bridge the gap between people and technology. That is, he must understand the company's cultural complexities and know its information systems.

The most common reason that schemes for business redesign fail are either that the company culture and politics block the change, or the IT resources are not put into place adequately. If the people changing the enterprise have limited knowledge of information technology (as they often do), the largest potential benefits of enterprise change will be lost. Likewise, if re-engineering is attempted without understanding how to change the organization's culture, the effort will

MEET YOUR NEW ENTERPRISE ENGINEER

Jack Higgins (a composite character) was hired in May 1995, as a full-time employee by a major insurance company. His job is to evaluate the company's business structures, work processes and culture.

Higgins' first responsibility was an assignment to facilitate an enterprise-wide strategic visioning and re-engineering effort. Working closely with the CEO and other top managers, including the CFO and the CIO, he is leading a customer-value assessment, which looks at every aspect of the company's products and services as perceived by the customer. He is also working with management to develop a new corporate vision and a mission statement.

Higgins' experience includes 10 years as a consultant developing strategic re-engineering and information strategies for a number of large corporate and government clients. Prior to his consulting practice, Higgins was vice president and general manager of a leading computer hardware company. Before that, he was vice president and general manager for the national accounts division of the same company, delivering complex telecommunications networks to a number of *Fortune* 500 firms.

Higgins holds a bachelor's degree in Electrical Engineering, a master's in Applied Physics and an MBA. He has three core qualifications as an enterprise engineer:

1.) **Technical training and a broad set of interests.** He was trained as an engineer and programmer with significant interest and study in psychology, philosophy, sociology, theology and management science.

2.) **Business and information systems development experience.** He has experience not only in IT management but also in senior-level business management and marketing divisions.

3.) **Understanding of human factors.** The people dimension is often the hidden thread in all successful re-engineering projects. Higgins' study of psychology comes into play here, as well as his experience of working in several organizations that have gone through major restructuring.

surely fail.

In the 1980s, we saw dramatic examples of highly automated car factories: robots welding, riveting and spray painting as car parts moved down the assembly line without human assistance. While you'd expect a strong correlation between automation and increased productivity in these plants, many studies, such as MIT's International Motor Vehicle Program, reported virtually no connection. Part of the reason was the lack of planning for a healthy human/machine interface

While IT has made the modern enterprise possible, the enterprise engineer must respect organizational culture. A mature organization has a deeply entrenched culture, like the roots of an old tree. But even though most have the wrong culture (typically, their culture was established before the age of empowered teams, *kaizen* or computer networks) the enterprise engineer must work with what he has and change the culture gradually.

Like an anthropologist, the enterprise engineer must understand the different layers of an organization's culture, both the formal and the informal culture. He must also understand how to overcome resistance to change. Like living organisms, organizations actively defend themselves against foreign invaders.

Take the U.S. government as a prime example of a firmly entrenched culture. Cray Computer's CEO John Rollwagen resigned to go to the U.S. Department of Commerce to assist the Clinton administration in transforming government. After several weeks, Rollwagen resigned because he could not see how to change the department's culture, even in subtle ways.

While the government is an extreme example of a well-established culture, corporations can be just as resistant. Consider IBM and General Motors: Both have been trying to reinvent themselves, with limited success, for the better part of a decade.

Thinking outside the box

After the enterprise engineer is hired, one of the first questions he should ask is: Can a redesign be accomplished by re-engineering the existing organization?

Hire the enterprise engineer from outside the company. He must challenge conventional wisdom, not reinforce it.

In many cases, the answer will be no. It is often necessary to build new business units, factories, subsidiaries or affiliates. If a company doesn't create new business units, it may become so entangled in its obsolete, convoluted culture that it is unable to survive in today's business environment.

Enterprise redesign often has to take place for other reasons as well. Two corporations may merge. A set of activities may be spun off to form a separate company. A corporation may have acquired a handful of companies only to find that it needs to redesign the entire new organization to achieve greater flexibility.

Sometimes the basic nature of the business changes under your feet. In this case, it may be necessary to split the enterprise into separate businesses with different missions and different types of operations.

This was the case for Agway, a large farm-supply company based in Syracuse, N.Y. At the end of the 1980s, Agway decided to re-engineer its business. First, top management reevaluated the nature of the business. Small family farms were disappearing and being replaced by large corporate farms. Agway's 600 stores sold everything from garden trowels to truckloads of material for large commercial farms. While the agricultural business needed a more efficient and direct source of supplies, Agway was losing general-merchandise sales to discount retailers such as Wal-Mart.

Senior management at Agway decided that retailing and commercial farm supply were different businesses. So they split the company in two, using different value-stream reinvention processes for each and creating two separate organizations.

There's no doubt that breakthrough thinking like Agway's is needed in most corporations. Real breakthroughs come from people asking new questions. Instead of asking, "How can technology improve what we are doing?" these people ask, "What new business opportunities are emerging?"

Breakthrough thinking is a habit of mind. Some people never do it; some become good at it. The professional enterprise engineer must make breakthrough thinking a full-time job. ♦

About the Author

James Martin is the chairman of James Martin Holdings, the parent firm of James Martin & Co. A writer, lecturer and consultant on computer/communications technology, Martin has authored approximately 80 books on information technology and received a Pulitzer Prize nomination for *The Wired Society*. He can be reached on the Internet at nitram@pavilion.co.uk

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OS/2 clear winner

In "What's ahead for OS/2?" [CW, Aug. 7], the subhead declares "IBM shifts focus back to server." Lou Gerstner had said, "the primary target for OS/2 is enterprise customers and real serious business users." This doesn't necessarily limit OS/2 to the server. Many companies have adopted OS/2 for all of their Intel-based systems, both workstations and servers. One of the advantages of OS/2 is that it works well on both sides of a client/server connection. Using a single operating system instead of two cuts maintenance costs almost in half because only one set of fixes needs to be tested and distributed. It also reduces the skill set needed to support the systems, cutting personnel costs.

The same article says, "four users at large OS/2 sites at Fortune 1,000 companies, who declined to be identified, said their corporations were thinking about dropping OS/2 in favor of Windows 95, Windows NT or a combination of the two." In the same issue, Charles Babcock says, "Microsoft Chairman Bill Gates recently told Wall Street analysts that he sees only two more versions of Windows before it merges with Windows NT ["NT suddenly looks better in the daylight of Win 95"]. Should I try to justify spending up to $1,000 per PC to convert to Windows 95 now and then to convert to Windows NT in a few years? No way — I've learned the hard way *not* to ask our management for two such similar upgrades. OS/2 is currently the clear winner on all fronts, including features, reliability, support and market share.

Robert Simpson
Senior lead systems programmer
Black Box Corp.
Pittsburgh

Waiting for Win 96

I noted in your Aug. 21 edition that Microsoft is the only company that had Windows 95 32-bit applications available when Windows 95 hit the shelves. The other major application developers are a minimum of 90 days behind.

This is further proof of the unfair advantage that the Microsoft application groups have over the competition. Wake up, Ms. Bingaman.

By the way, I, for one, will not be upgrading until possibly Windows 96.

Brian Howland
President
Fidelis Associates
Foxboro, Mass.

Time for Steve Case to wake up and respond to users

Gary Beach hit the nail right on the head with his letter to Steve Case ["More service, less whining," CW, Aug. 14]. Maybe he'll have more luck than I have had getting a response from him.

I have told Case that his performance wouldn't be tolerated in a "real" business. I also suggested that he consider moving off those Stratus computers to a real mainframe.

America Online is also very East Coast-centric, and two to four times a week they bring the system down at 1 a.m. Pacific time, which affects my late-night productivity.

I've asked what they would do if they had to provide support 24 hours a day, seven days a week like a number of other large businesses, but I didn't get a response to that, either.

In my opinion, America Online doesn't consider its members users. We are just bodies that come and go.

Joe Warren
Abpro Systems
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JoeWar110@aol.com

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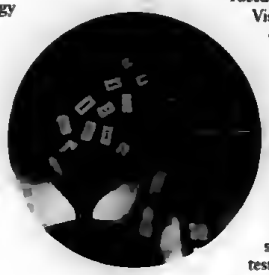

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Wednesday, October 4, 7:00-8:30pm

Key client/server development tools vendors Microsoft, Powersoft, Borland, Gupta, IBM, Symantec, and Oracle are set to put their Visual 4GL tools to the test. Specifications, designed by Christine Comaford, *PC Week*, will be handed out at the event. Watch on giant screens as the teams use the power of their tools to get through the specs in 1 hour.

Free Roundtables!

Tuesday October 3, 11:00am-12:00pm
Realities of Legacy Migration and Distributed Computing

Tuesday, October 3, 1:00-2:00pm
Application Plug-In Models

Thursday, October 5, 1:00-3:00pm
Comparing Component Software Strategies

Friday, October 6, 11:15am-12:45pm
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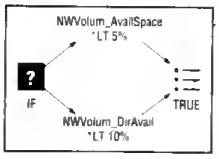

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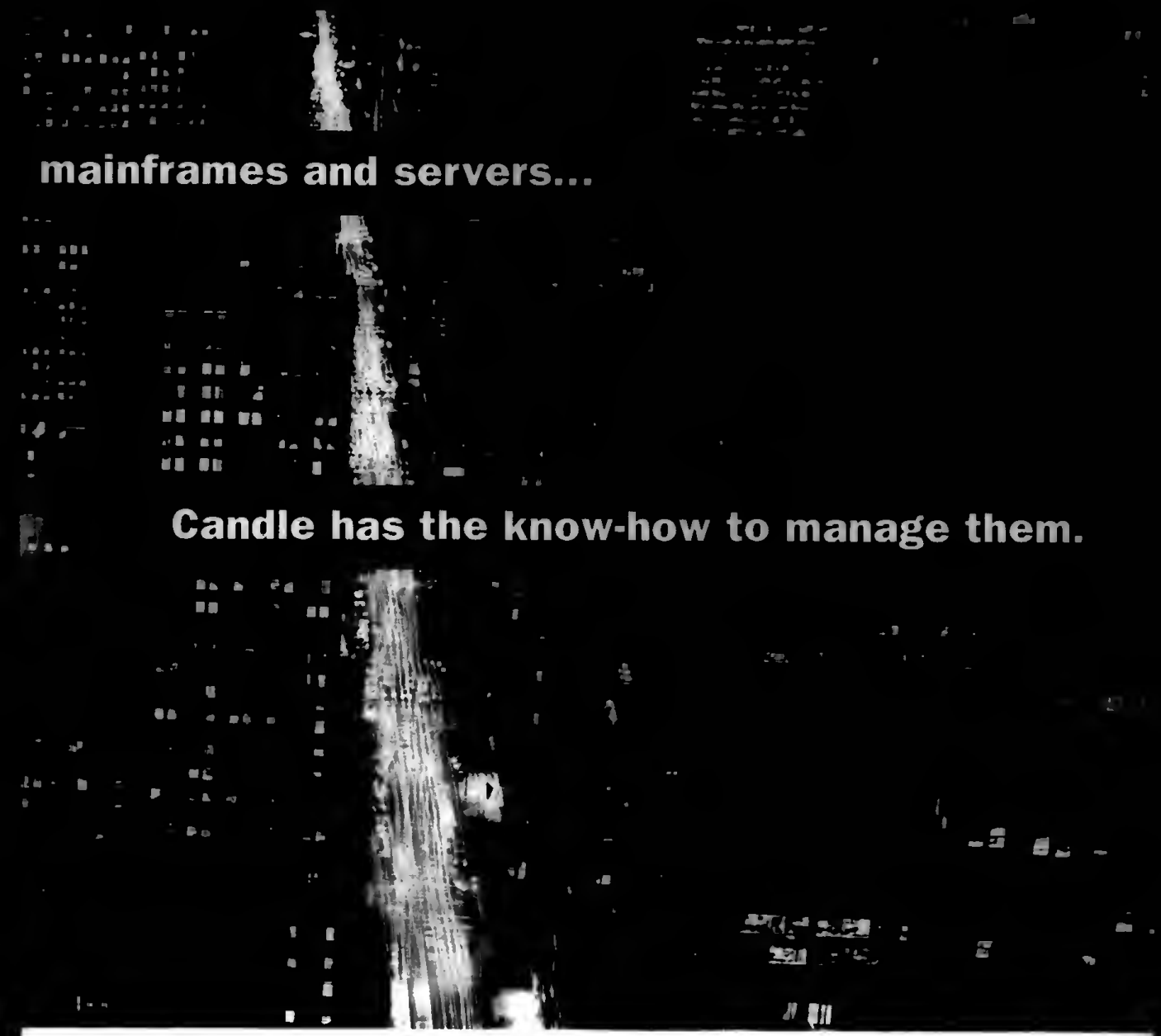

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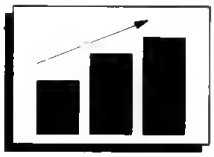

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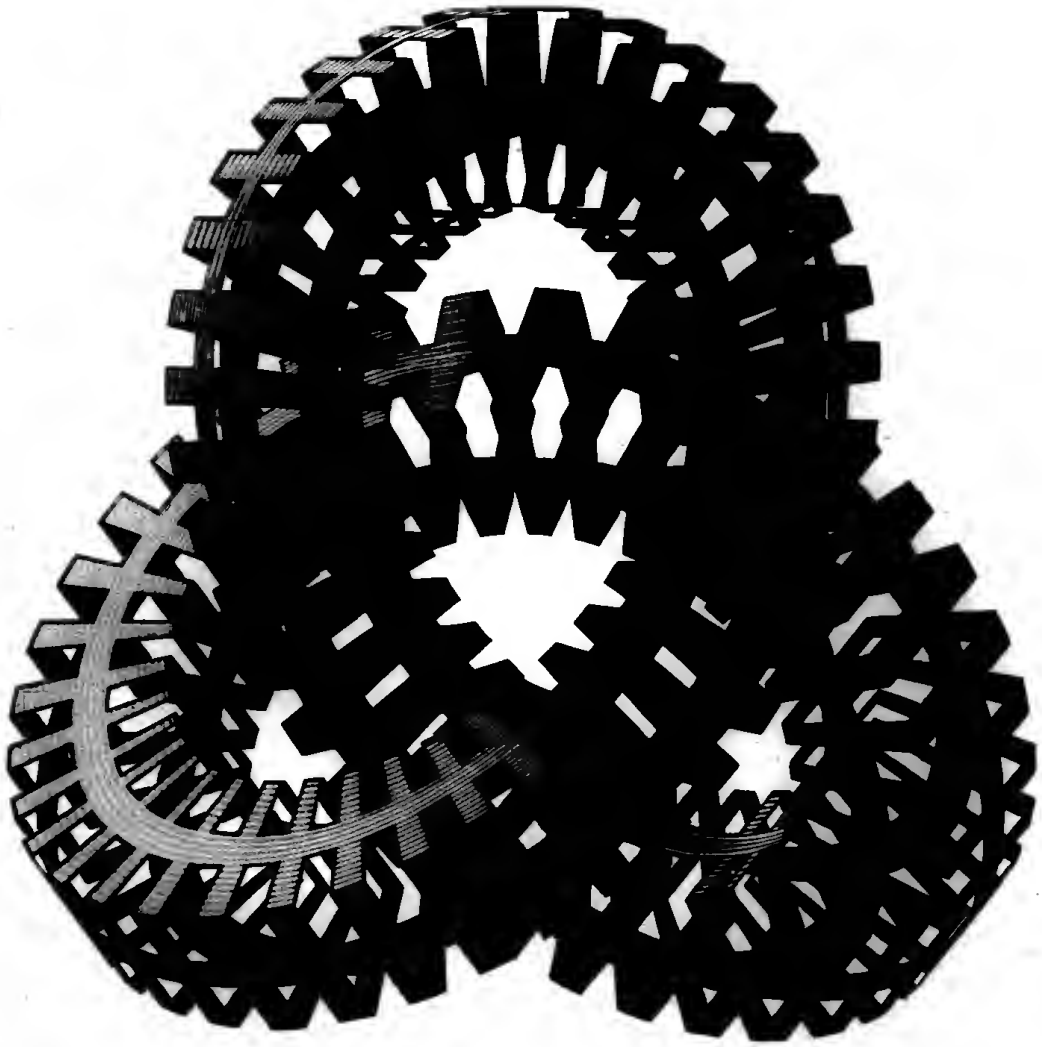

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EUROPEAN FIRMS CAUTIOUS ABOUT WINDOWS 95, 50

Desktop Computing

PCs AND SOFTWARE • PORTABLE COMPUTERS

Office 95: Many changes, fewer big improvements

By Howard Millman

The initial euphoria over Window 95's increased stability and improved desktop has abated. Now it is time to think about applications that capitalize on other Windows 95 benefits, such as long file names, 32-bit performance and multithreading.

We evaluated the first suite to arrive, Microsoft Corp.'s Office 95, to determine if its promised productivity outweighed the cost and time to upgrade and retrain users.

Microsoft apparently anticipated these questions. Office 95 installed without protest. We installed the full suite on a Novell, Inc. NetWare 4.1 server in less than an hour. Partial credit for the easy installation, however, goes to my defusing most ticking bombs during the installation of Windows 95.

Office 95 *costs $499 for the Standard Edition, $599 for the Professional Edition. Upgrades cost $249 until Jan. 1, $299 thereafter. Microsoft also offers a Windows NT version.*

Wizards everywhere

Help abounds in Office 95, much of it in the form of intelligent, interactive macros called Wizards. But ask the Answer Wizard a question and you are as likely to get a usable response as to get one that misses the mark. For common tasks, such as adding columns or changing page orientation, Answer Wizard runs an animated sequence that shows the keystrokes required to accomplish the task.

Microsoft expanded the role of its Tip Wizard. It now works across all of Office 95's applications; concise help tips conveniently pop up whenever the cursor passes over a menu area or hot spot in the document.

In addition, there are application-specific Wizards throughout the suite.

A Network Wizard, promised as part of the soon-to-ship Office Re-

Office 95, *page 50*

Intel offers upgrade path to Pentium performance

By Jaikumar Vijayan

Intel Corp. last week became the latest entrant to the Windows 95 upgrade fray, adding a Pentium OverDrive chip to its processor upgrade family.

The 83-MHz chip is Intel's top-of-the-line upgrade processor. It will give users of 486-based systems an upgrade path to performance that rivals that of 60- to 75-MHz Pentium systems, Intel said.

PC upgrades

But despite the $299 price tag of the processor and the 50% performance increase that Intel said the chip will provide, users are unlikely to flock to it in overwhelming numbers, analysts said.

The reason: Few commercial users upgrade just their processors. To get any kind of significant performance boost — especially to run Windows 95 applications — users of older systems will also need to boost other features, such as memory, graphics capabilities, video RAM and hard disk space.

High prices

These are midlife kickers that add significantly to the overall cost of upgrading. For instance, installing an extra 4M bytes of RAM and adding the upgrade chip will push the cost to just under $500 per system, not including labor.

Factors such as these, combined with constantly falling system prices, could push users to buy new systems instead, said Tony Massimini, an analyst at Semico Research Corp. in Phoenix.

"It's like putting a new engine in an old car — you don't get a performance increase unless you change everything else," he said.

Intel says users of some older systems with small disk drive capacities and amounts of memory may be better off buying new machines.

Yet some users said they will benefit from the upgrade chip. The chip will add to the life of a system, and users of relatively recent 486-based systems with 8M bytes of RAM will see dramatic improvements in performance, according to an Intel spokesman.

One such user is Ralph Petty, a microcomputer specialist at the Pioneer Bank in Chattanooga, Tenn. The bank has a fleet of 486- and Pentium-based systems, all with 8M bytes of RAM.

"What we look at would be the price/performance comparison if the chip is priced correctly and offers the benefits of a true Pentium chip," upgrading would not be a bad option to consider, he said.

UPGRADE A sample of Intel's OverDrive processor family

OverDrive processor	Can be used to upgrade	Price
83-MHz Pentium	486SX2 and 486DX2 systems	$299
63-MHz Pentium	486SX2 and 486DX2 systems	$279
100-MHz DX4	486SX and 486DX systems	$229
75-MHz DX4	486SX and 486DX systems	$179

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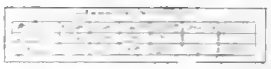

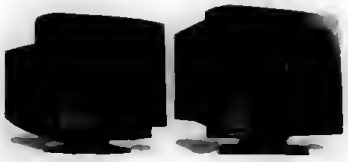

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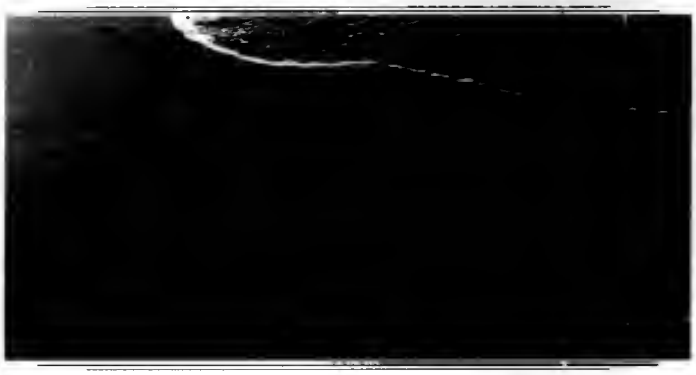

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The best of both worlds: Win 95 on the Macintosh

By Lisa Picarille

Users who need to run Microsoft Corp.'s Windows 95 on their Macintosh or Power Macintosh systems now have a variety of hardware and software choices.

With these new products, Macintosh users can run Windows 95 programs without giving up their Macintoshes.

Apple Computer, Inc., Reply Corp. and Orange Micro, Inc. now offer upgrade boards. These boards contain an Intel Corp. processor and let users switch between the Windows 95 and Macintosh environments with a hot key. Most support video and offer a variety of networking support, including Novell, Inc.'s NetWare, TCP/IP, Ethernet and Token Ring.

Apple's $739 DOS Compatibility Card lets users run DOS/Windows 3.1 or Windows 95 on their Power Macintosh 6100 systems. Apple's DOS Compatibility Card plugs in to the Macintosh Nubus slot and provides the performance of a 486DX2 chip running at 100 MHz.

Next year, the Cupertino, Calif., computer maker is expected to deliver similar capabilities on a card that will work with its newer Peripheral Component Interconnect (PCI)-based Power Macintoshes, according to sources close to the company.

For its part, Reply in San Jose, Calif., is shipping two lines of cards. The first — called the DOS on Mac Card — lets users of the Power Macintosh 6100, Macintosh Centris 610 and 650 and Quadra line of computers run DOS/Windows 3.1 or Windows 95 on their Macintosh systems. Prices for the DOS on Mac Card family start at $495.

For Power Macintosh users, Reply offers its DOS on Power Mac Card. The series, which starts at $595, supports 66-MHz Power Macintosh 7100 computers.

Mac opens Windows

Products that let users run Microsoft's Windows 95 on a Macintosh

Company	Product	Starting price
Reply	DOS on Mac Card	$495
	DOS on Power Mac Card	$595
Orange Micro	200 series for Nubus	$801
	400 series for PCI	$1,600*
Apple	DOS Compatibility Card	$739
Insignia Solutions	SoftWindows 95	No pricing yet**

*Due in October **Due February 1996

Like the DOS on Mac Card family, this line also allows users to switch between the Macintosh and Windows 95 environment using a hot key and lets users cut and paste files and data between the two environments. The card plugs in to the processor direct slot and comes in 66- and 100-MHz 486DX2 configurations.

Last but not least

Orange Micro in Anaheim, Calif., rounds out the trio. Its product, the 200 series for Nubus, was designed for Macintosh users who still work on any of the older Nubus Macintoshes. Prices start at $801.

The 200 series plugs in to the Nubus slot and lets users toggle between the Macintosh environment and DOS/Windows 3.1, Windows 95 or OS/2.

The company plans to deliver a new family of cards next month that will work on Apple's new PCI-based line of Power Macintoshes. Prices for the 400 series for PCI are expected to start at $1,600.

All of Orange Micro's cards include 66- or 100-MHz 486DX2 processors.

For users who prefer software to hardware, Insignia Solutions sells a package that provides functions comparable to the cards'.

Insignia in Mountain View, Calif., now ships only a Windows 3.1 product but plans to deliver SoftWindows 95 in the first quarter of next year. That product is expected to allow Macintosh users to run all their Windows 95 applications unmodified with 486 performance. Pricing for SoftWindows 95 hasn't be determined, but pricing for the current package is $299.

One information systems manager at a large East Coast investment firm, who asked not to be identified, said the software — while usually less expensive than the add-in cards — can mean a performance hit because the software runs in emulation mode.

"You just don't get the same performance as using hardware," he said. "But it's cheaper and easier to justify the cost of keeping your Mac."

Briefs

Judge calls jury wrong

Texas Instruments, Inc. said it will appeal the startling decision by a federal judge in Dallas last month that threw out a $51.8 million jury award to the company. TI sued three rival semiconductor firms in 1990, charging they infringed on its patents for plastic-encapsulated semiconductors. When the five-year trial ended in May, the jury handed TI a victory after deliberating less than one hour. But U.S. District Court Judge Barefoot Sanders ruled that the jury failed to fully understand the evidence.

Win NT gets certified

The National Computer Security Center, a division of the U.S. National Security Agency, certified that Microsoft Corp.'s Windows NT meets all criteria necessary to be certified as a C2-level secure system, Microsoft said last week. Combined with certification earlier this summer that NT qualifies in contract proposals as an "open" system, Microsoft is looking to see that NT wins more contracts in the federal computing arena, long a bastion of Unix systems vendor.

Mobile connections

Mobile and remote communications product vendor Relay Technologies, Inc. in Vienna, Va., and FTP Software, Inc. in Andover, Mass., recently announced a strategic partnership for product licensing and technology development. Under terms of the deal, FTP Software will incorporate Relay Technologies' 3270 and 3250 terminal into its OnNet for Windows product line. The emulation functionality will enable remote and mobile workers to access applications running on IBM mainframes and AS/400 minicomputers.

Notebook takes a lickin' and keeps on clickin'

By Mindy Blodgett

A 486-based Windows notebook you can drop on concrete and bang against doorways?

That is what Itronix Corp., a wholly owned subsidiary of Telxon Corp. in Spokane, Wash., says it has created in the X-C 6000 Cross Country.

The ruggedized computer is the first fully integrated notebook with both wide-area wireless and landline communications capabilities for voice and data applications, company officials said. Aimed at "mission-critical" mobile workers in the vertical markets, including field service and public safety workers, the X-C 6000 is a unique bridge device between handheld devices and executive laptops, according to industry observers.

Itronix's X-C 6000 Cross Country *offers wireless and landline radio capabilities for voice and data applications*

"This is . . . an interesting convergence of specialized, ruggedized devices and laptops, said Daniel Merriman, an analyst at BIS Strategic Decisions, Inc. in Norwell, Mass.

The notebook provides wireless access via the RAM Mobile Data USA L.P. Mobitex and ARDIS Co. radio networks as well as the circuit-switched cellular voice and data and Cellular Digital Packet Data networks.

An X-C 6000 for landline use will cost about $4,400. Wireless radio capabilities cost an extra $1,500.

"You do pay a premium for this device," Merriman said. "But for some, it will be worth it."

Wish granted

Among those is Larry Finney, a systems director at Sears, Roebuck and Co. in Hoffman Estates, Ill. Finney had a hand in the device's design, demanding that it withstand all weather conditions and survive shock and vibration tests.

"I asked for the world, and I was amazed they gave it to me," he said.

Sears plans one of the largest wireless deployments of field service employees to date, eventually outfitting 13,000 workers with the devices.

Dennis Hinshaw, a staff administrator at GTE Telephone Operations in Irving, Texas, is running a pilot using the devices for field service technicians. GTE will deploy 13,000 employees nationwide with the X-C 6000 in nine months.

Hinshaw said the devices will use a geographic information system that gives technicians access to computerized maps of the telephone network and vastly eases repairs.

While ruggedness helped, "our No. 1 issue was that we needed a full-fledged laptop computer so [users could] have access to the database," Hinshaw said.

Besides repairs, the technicians will use the notebooks to sell and update telephone service for customers.

"We think the rather large investment will pay off," Hinshaw said.

European firms cautious about Windows 95

Conservative buying patterns, high upgrade costs make companies leery

By Cara A. Cunningham

European corporations are taking a wait-and-see approach to upgrading to Microsoft Corp.'s Windows 95, according to a recent survey of 169 resellers in this region.

Windows 95

The No. 1 obstacle blocking Win 95 from wide acceptance in corporate Europe is the operating system's hefty PC resource requirements, according to a study conducted in June and July by Global Touch, Inc., distribution consultants in Berkeley, Calif. The majority of the European PC installed base is not configured with the required 8M bytes of memory to fully exploit Win 95, the study said.

Other reasons that resellers gave for why European corporations will not rush to upgrade to Win 95 include conservative buying patterns; the cost of upgrading PC hardware to exploit specific Win 95 features, such as plug and play; the lack of European language versions of Win 95-specific applications; and not enough training and technical support sources in the region.

Success will come

Resellers are confident that Win 95 will, however, find quick success in the European consumer market, the study said. The upgraded operating system is already available in both French and English, and Microsoft plans to release the upgrade in 18 additional European languages by the end of October, company officials said.

European resellers surveyed also said they expected less than 5% of their most important accounts to upgrade to Win 95 next year. More than half of the resellers estimated that Windows will find better success among European corporations when the next version is released, according to the study.

Cunningham is the IDG News Service Paris correspondent

Office 95

CONTINUED FROM PAGE 45

source Kit, will simplify large-scale network installations.

Windows 95's pre-emptive multitasking and Office 95's multithreading work together to enable specific tasks to run in the background. For example, Word's customizable spell checker flags misspelled words. AutoCorrect, available in all applications, corrects common mistakes, such as two capital letters. AutoCorrect now lets users permanently and quickly modify its rules database.

Another multithreading feature allows background file indexing and searching. Unfortunately, users may find the dialog boxes and Help screens confusing. Users may prefer the pokier but friendlier Find tool in Windows 95.

Performance boosts

In addition to multithreading, Office 95 takes advantage of Windows 95's 32-bit architecture to improve performance. Our tests show that Excel's recalculate feature runs 30% to 40% faster. Likewise, printing in Word and PowerPoint (but not Excel) can benefit from multithreading and multitasking.

Documents print in about half the time they did with Word 6.0. Along with printing, Microsoft tuned the suite's code to improve the performance of many common tasks, such as file loading and saving.

Office 95 introduces or improves dozens of timesaving features. Some destined for good use in the enterprise include a competent, if unpretentious, scheduler/contact manager and a redesigned shortcut bar.

We installed the suite on both networked and standalone machines, a collection of Compaq Computer Corp. and clone 486-based systems. RAM ranged from 8M to 16M bytes. We also tested Office 95 on a 100-MHz Pentium server with 32M bytes of RAM.

The downside

Running on a stand-alone Compaq 486-based machine with 8M bytes of RAM, Office 95 declined in performance after we opened three applications. But when we ran five applications on a 486 PC clone with 16M bytes of RAM, there was only a minor decrease in responsiveness.

Despite the many welcome, if modest, improvements Office 95 delivers, the suite owes most of its newfound performance and features to capabilities conferred by Windows 95. The most important features — such as increased stability, an easier-to-use desktop and improved printing speed — will be gained by all users of the operating system, even those who continue using 16-bit applications.

Consequently, we advise waiting to see how well Lotus and Novell capitalize on Windows 95's features in their upcoming suites for a basis of comparison.

Millman, based in Croton, N.Y., operates the consultancy Data System Services Group. He can be reached at hmillman@mcimail.com.

The components of Office 95

Excel: New or expanded features include AutoCorrect, which sums noncontiguous cells. AutoComplete makes some educated guesses about the contents of a cell as you type data in and offers completion suggestions. Multiple users can work in the same worksheet. Unfortunately, Excel does not offer multiple Undo levels.

Binder: A Microsoft OLE container that collects documents from all sources and collates them into a single compound document. This duplicates available functionality by just creating a folder and dropping copies of the related documents into the folder.

PowerPoint: Provides increased support for multimedia components, sound, video and animation. PowerPoint now enables the presenter to take notes during a presentation. If you use TCP/IP networks, you can administer a presentation remotely.

Schedule+95: A convenient, entry-level contact manager, scheduler and address database. You can drag and drop appointments and tasks between days, view your schedule in daily, weekly or monthly format — and even send your schedules to your Timex wristwatch. Schedule+95's Meeting Wizard handles the details of setting up a meeting, including juggling the schedules of the participants. Surprisingly, there's no provision for E-mail addresses in the Contact database.

Windows 95 resources

Software

Windows 95 Advisor. Two 1.44M-byte disks; requires 3M bytes of disk space. Helps prepare a migration checklist; provides upgrade recommendations; evaluates hardware and disk space; provides a utility to compress and/or remove files on the hard disk. Cost: $29.95. Touchstone Software Corp., Huntington Beach, Calif. (714) 969-7746.

QuickTutors 95. A utility that helps users master Windows 95. The product provides reference "cards" by subject. Cost: $14.95. Usability Sciences Corp., Irving, Texas (214) 550-1599. QuickTutors' electronic-mail address is quickc@netcom.com.

Books

Field Guide to Windows 95. Quick reference guide for novices and users who need to find information quickly. By Stephen L. Nelson; Microsoft Press. Cost: $9.95.

Lufthansa readies multimedia system

By Torsten Busse
FRANKFURT

■ Every hour an aircraft sits on the ground costs airlines thousands of dollars, so timely and efficient repair service is a top priority.

With an eye toward getting its planes out of the hangar faster, Lufthansa German Airlines next month will begin field-testing a homegrown multimedia system that integrates maintenance databases with real-time audio and video communication applications.

The system, called BISAM (Broadband Integrated Services for Aircraft Maintenance), will allow Lufthansa maintenance engineers at geographically dispersed airports to work simultaneously on aircraft malfunctions over Integrated Services Digital Network and Asynchronous Transfer Mode network links.

The system features Sun Microsystems, Inc.'s SunSPARC 5 and 10 Unix servers and workstations equipped with and audio and video applications that allow multiple users to jointly view and edit documents, video and still images.

The video cameras allow engineers to see the person they are talking to and also supply the transmission of video images of faulty aircraft components for problem analysis, said Christian Orlowski, project leader at Lufthansa here.

Busse writes for the IDG News Service in Munich.

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The new Compaq Contura notebooks. Powerful DX4 processors as fast as 100MHz. Up to 720MB of storage capacity. A docking base that lets you use an external monitor, mouse and keyboard. All in one remarkably affordable, elegantly efficient little package. Finally, a line of notebooks that excel in the oddest of places. Like wherever you happen to be.

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Briefs

Windows 'net apps coming

Ipswitch, Inc. in Lexington, Mass., is planning to ship CyberSuite, a bundle of Internet applications for Microsoft Corp.'s Windows 95, Windows NT and Windows 3.1 systems. Priced at $95 per user, the package is expected to ship next month.

Caught in the act

Law enforcement officials in New York recently raided a high-tech bookmaking operation that was pulling in up in $65 million a year in illegal bets. Charles J. Hynes, the Brooklyn district attorney, said it was the first time law enforcement agencies in the New York metropolitan area had encountered a computerized bookmaking operation. Investigators said IBM PCs equipped with special keyboards were used to record wagers for clients. The computers, which provided the bookies with up-to-date accounts of gambling profits, were also linked to a legal on-line service from Las Vegas.

Doubleplay action

Combyte, Inc. in Fort Collins, Colo., last week introduced Doubleplay, a two-in-one disk drive that allows PC users to store and access files on both quarter-inch tape cartridges and floppy disks.

The Doubleplay drive is available as an external unit for $299 and as an internal unit for $199.

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Such as the multi-billion dollar bank, handling as many as 120,000 calls a day, that completely reconfigured its customer service operations. The giant retailing conglomerate that totally reengineered its customer database infrastructure for 500 stores. The information systems developer that integrated a central government's wage and tax system into its accounting and purchasing systems.

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HP CD-ROM price bomb hits

By Steve Moore

Hewlett-Packard Co. recently unveiled a low-cost, recordable CD-ROM drive bundled with related software for managing CD file access and transfers. The SureStore CD-Writer 4020i targets PC users in small businesses that have CD-ROM drives and need high-volume storage.

With street prices for the drive and software expected to be in the $999 to $1,099 range, "HP is blowing the bottom out of prices on CD-ROM drives. The best price in the market today has been $1,800," said Mike Peterson, president of Strategic Research Corp. in Santa Barbara, Calif.

CD-ROM technology is "pretty well recognized" in the corporate world now, he added.

Users hailed the new drive and related software such as Alchemy Personal from Information Management Research, Inc. in Englewood, Colo., which allows users to create and search databases on CDs.

Instead of spending 15 to 20 minutes wading through a library of floppies to find a file, "We will put all our floppy disk [files] onto CDs and use Alchemy Personal to store and search for files," said Gayle Clements, a systems administrator at Rudder, Liebersbach, Mohun & Carney in Mammoth Lakes, Calif.

Because three years of the firm's data fits on a single CD, the HP drive "will save us a ton of time and allow us to hold on to documents longer without putting them into storage or having them lost on a floppy somewhere," said Barbara Thompson, a systems administrator at the firm.

Software bundled with HP's SureStore CD-Writer 4020i

- **Easy-CD:** An extension of the Windows File Manager for file transfers to CD
- **Alchemy Personal:** For creating and searching CD databases
- **Magic Lantern:** For photo CD viewing
- **Easy-CD Audio:** For creating custom audio discs

Liberation Systems for Enterpr . A

CODA

Virtual Reality Laboratories, Inc. has unveiled Formbuster 2.1 for Windows, a forms imaging and completion program.

According to the San Luis Obispo, Calif., company, Formbuster 2.1 lets users convert paper forms into electronic forms by importing them via scanning or fax machine or importing them through another application. The form image appears on the screen and can be filled in using the keyboard or database's stored information. Once a form is completed, it is sent directly to a fax machine or printer or stored for revisions.

Formbuster 2.1 features a zoom scroll bar, which lets users magnify any part of a form, and dynamic tab buttons for forms that use repetitive data. The product lets users edit the form image as well as the text. It also allows the addition of custom graphics, logos and signatures.

Formbuster 2.1 costs $100.

▶ *Virtual Reality Laboratories*
(805) 545-8515

EliaShim, Inc. has rolled out ViruSafe for Windows 95, antivirus protection for users of Microsoft Corp.'s Windows 95.

According to the Pembroke Pines, Fla., company, ViruSafe for Windows 95 is a 32-bit antivirus protection product. It can detect and eliminate unknown viruses, including polymorphic viruses, and it uses Windows virtual memory rather than memory overhead. Its device driver monitors all DOS boxes and Windows applications, and it is always loaded first as part of the operating system before any virus can load itself.

ViruSafe for Windows 95 is fully compliant with Windows 95. It also autoscans new disks when it is accessed by any DOS or Windows applications.

ViruSafe for Windows 95 costs $100.

▶ *EliaShim*
(305) 450-9611

Tektronix, Inc. has introduced the Phaser 540 Plus, a desktop color laser printer.

According to the Wilsonville, Ore., company, the Phaser 540 Plus prints four full-color pages per minute. It comes with Adobe Systems, Inc.'s PostScript Level 2 and was designed for general printing of short-run reports or newsletters with a mix of color and monochrome pages.

The Phaser 540 Plus uses standard office letter- and legal-size paper in a 250-sheet tray. An optional tray assembly can hold up to two additional 250-sheet trays. For overhead transparencies, a 100-sheet media tray is available.

The Phaser 540 Plus costs $8,995.

▶ *Tektronix*
(503) 682-7377

Extensis Corp. has unveiled QX-Tools, a collection of extensions for Quark, Inc.'s QuarkXPress.

According to the Portland, Ore., company, QX-Tools was designed for the daily QuarkXPress 3.3 user. It is an integrated set of 10 extensions that makes QuarkXPress work faster and more efficiently, the company said.

The central component of QX-Tools is QX-Bars, tool bars that can be customized with buttons representing any QuarkXPress function as well as additional functions provided by QX-Tools. Other components include tools for navigating, applying character styles and scaling multiple objects.

QX-Tools requires QuarkXPress 3.3.1 or later and System 7.1 or later.

QX-Tools costs $99.

▶ *Extensis*
(503) 274-2020

DataScriber Systems, Inc. has introduced Infolopes for Windows, a desktop information management product.

According to the Bozeman, Mont., company, Infolopes for Windows lets users build an information database of files and information that they frequently update and access. Users can create information database envelopes that reveal related files and include notation text and automatic reminders.

Each information envelope has a name of up to 64 characters and can include 1,024 characters of notation. Users can attach up to four related files including documents, pictures, audio and video files. Information envelopes are arranged alphabetically and are fully searchable.

Infolopes for Windows costs $54.

▶ *DataScriber Systems*
(406) 585-2754

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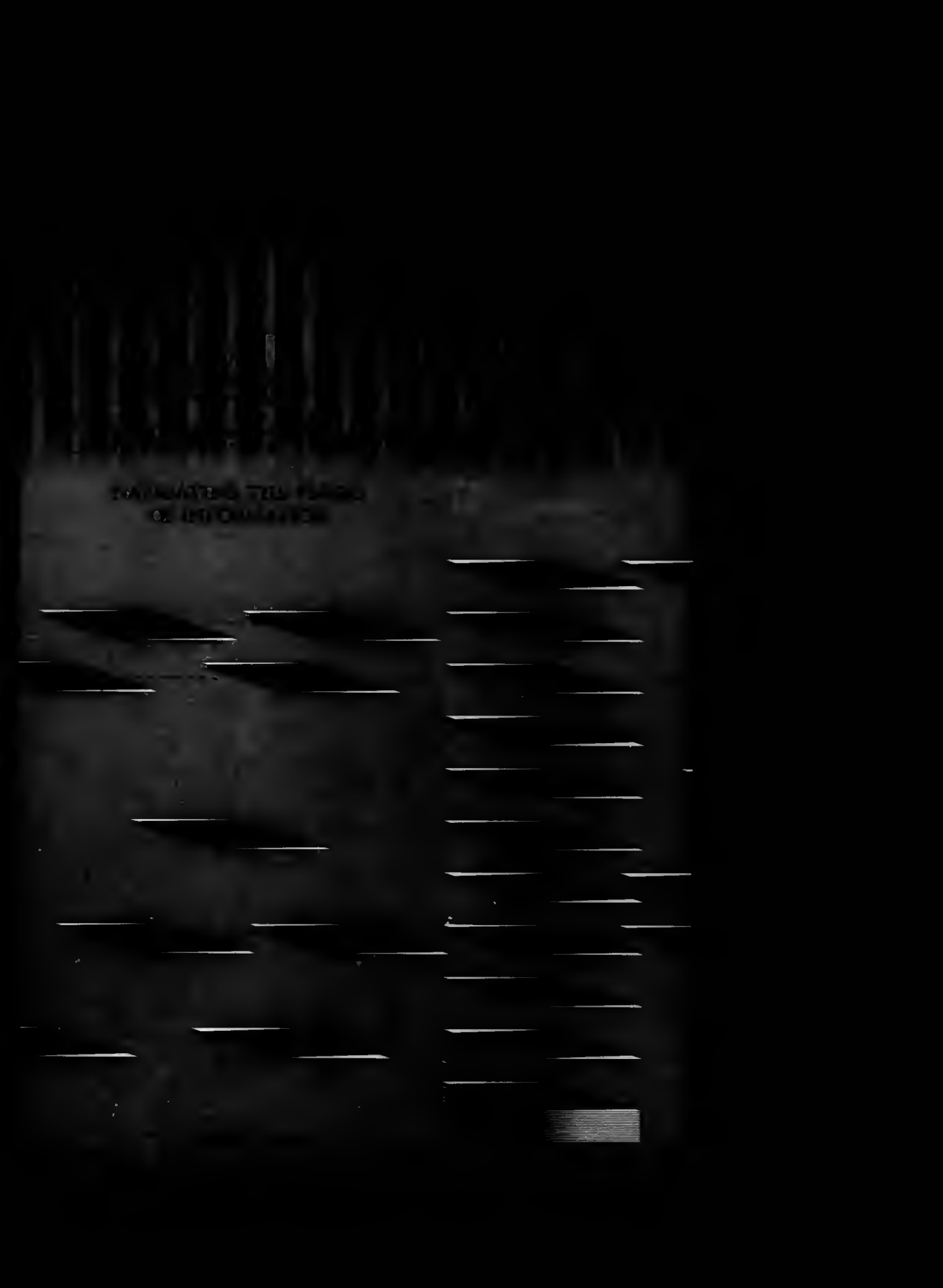


Document Management for the Enterprise

BY LINDA MYERS-TIERNEY
Program Director for International Data Corp. (IDC)

Electronic Documents: The New Currency of Business

Like a lava flow, electronic document management (EDM) is a hot, growing, and pervasive element on many corporate networks. The time is right: Organizations are demanding that their document sets be treated with the same value as their corporate data. Electronic documents have become the currency of business. Many businesses have started using EDM to keep geographically dispersed groups in sync, to automate costly paper-based methods, and to eliminate process bottlenecks. At the same time, organizations are moving from a hierarchical management culture to a more collaborative style. This makes it even more essential that the corporate knowledge base of documents be managed as a corporate asset, and accessible to those who need it. On the technology side, current client/server architectures are ripe for EDM, and increased exchange of documents because of e-mail and networks begs for organization and control.

Companies See Returns from EDM

An enterprise implementing EDM can track documents better and retrieve them faster while eliminating paper storage. These benefits are transferable across industries. For example, in a telecommunications company that deployed EDM, its proposals department met deadlines better and increased the quality of its responses. Improved customer satisfaction was achieved by a mutual funds company whose use of EDM enabled faster responses to customer correspondence, and allowed for employee cross-training.

Moving towards Enterprise EDM

But until now, enterprisewide EDM could be complex. The days of single-user access and solely text-based documents are gone. Today's documents represent a variety of object types, including text, image, data, voice and full-motion video. Not only are documents themselves dynamic, but so are their sources, which can be e-mail, online databases, and information feeds.

Top 10 Benefits Realized from Current EDM Systems

1. Improved productivity, reduced headcount
2. More managerial control
3. Improved access to documents
4. Faster times to develop new documentation
5. Time savings logging paper in and out
6. Better employee collaboration
7. Improved management reporting
8. Faster approval process
9. Improved document security
10. Improved customer/client satisfaction

Source: International Data Corp.

Many businesses are finding their greatest competitive advantage is the ability to harness the document lifecycle. EDM systems manage this lifecycle from creation, revision, storage and retrieval to routing and workflow. They also allow users to work on documents collaboratively. When IDC conducted its *1995 EDM User Awareness and Buying Intention Survey*, over 80% of the respondents said EDM was critical and over 90% of them said their company had installed document management in only one or two workgroups or departments. This points to a potentially explosive market for enterprisewide document management.

Enterprise Reusability is the Key to EDM Payback

Reusability of information is EDM's main benefit, as well as the key to creating the paradigms that drive

business process reengineering. For example, a semiconductor company responding to an RFP uses enterprise EDM to access and leverage information from existing documents from various departments, including engineering, sales, finance, and legal, to shorten response time and improve business opportunities. When many people participate in the creation, review and editing of a document, EDM capabilities such as version control and check-in/check-out become essential. In a workgroup, the scope of search and retrieval broadens from one user's disk to a network full of documents.

As information overload grows, an EDM system's ability to search, dissect and reuse information becomes crucial. To satisfy such demands, EDM systems will need to be integrated with disparate sources of information such as news feeds, e-mail and a variety of corporate databases. EDM users will also have to be able to search for information intuitively, regardless of its location on the network. Finally, EDM systems will have to allow users to view, translate, edit and distribute information as it is reused.

Multiplatform, Multi-application

Because of the current mandate to deploy open systems and heterogeneous environments, EDM systems should support multiplatforms and provide open APIs for integration. No longer can a software vendor dictate the desktop environment; it must accommodate all devices on the network. EDM systems should also support many software packages, including word processing, desktop publishing, spreadsheet, imaging, and other applications important to the organization. The production department cannot be left out of the EDM loop, just because they run Quark on Macs!

With collaboration, users have both workgroup and enterprisewide concerns. And with enterprisewide EDM, organizations are faced with the challenge of heterogeneity in their document formats, repositories and networks. Such interoperability across software and hardware platforms has become critical. In IDC's survey, respondents said their chief challenge in implementing EDM was "integration of heterogeneous applications." Underscoring this, respondents indicated their most required feature: integration with existing applications.

Standards in Place

The emergence of standards signals market maturation, in this case from department/workgroup to enterprisewide deployment. The Document Management Alliance (DMA) was formed with a charter to deliver specifications for universal interoperability among all document management applications, services and repositories. The DMA includes vendors of EDM and complementary technologies, and user groups. Just as SQL once transformed the RDBMS market, so too the DMA has the potential to foster cooperation among competing vendors, boost buyer confidence and encourage more cross-enterprise EDM implementations.

EDM: A Network Necessity

Prior to the availability of enterprise EDM, locating a document over a LAN could be difficult, and over a WAN nearly impossible. With the model for collaborative work spreading, and with more users sharing documents through e-mail and the Internet, enterprise EDM has become a necessity.

Many organizations already have an enterprisewide EDM strategy in place. Those that don't can gain immediate benefits by deploying EDM at a departmental level where documents are mission-critical. The experience they gain will provide data specific to their environment, which will be vital to the development of a strategic EDM plan.

Whether implementing EDM at the workgroup or the enterprise, this is truly a case where all roads lead to Rome — and Rome is electronic document management. And when in Rome. . .

Keys To Enterprise Document Management

After losing enough time, money and productivity sifting manually through overflowing and underorganized file cabinets, or searching for an electronic document in a maze of network directories with cryptic file names, organizations have begun considering EDM (Electronic Document Management). Many of them have turned to DOCS Open from PC DOCS Inc., the overall leading choice among network-based document management packages, according to IDC's 1994 Document Management survey.

DOCS Open V2.5, the Enterprise Edition, allows users to share, manage and control documents across the major desktop platforms, including Windows, DOS and Macintosh. In addition, it supports the leading network operating systems and SQL databases.

When evaluating an EDM it is important to consider the following key issues that have been identified by industry analysts:

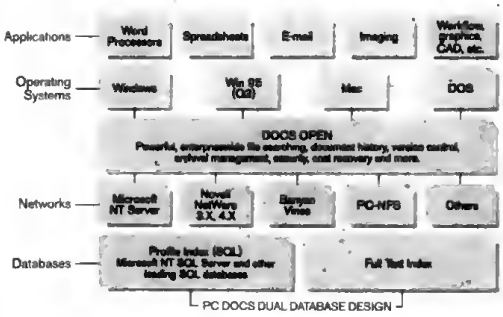
Open Architecture

An EDM must have an open architecture to tie into an organization's existing network and database infrastructure and to readily accommodate new technologies as they are available. DOCS Open has been designed around an open architecture, giving the customer the widest choice of networks and SQL databases.

With Windows, DOS and Macintosh supported in DOCS Open V2.5, the Enterprise Edition, the customer now has the choice of the operating system client as well. In addition, PC DOCS is prepared to support Win 95 as soon as it becomes available. DOCS Open takes full advantage of Microsoft BackOffice products such as Windows NT Server and SQL Server for Windows NT.

While some competing EDM packages utilize their own proprietary databases and others are limited to Unix-based solutions, DOCS Open supports the leading SQL-based vendors on all platforms (Unix, NT, NLM, etc.). The combination of DOCS Open and Microsoft SQL Server for Windows NT allows a customer to run multiple network platforms and to leverage existing database systems. DOCS Open and Microsoft SQL Server can be deployed on an existing Novell network infrastructure without costly change to network and client software.

Open Architecture of DOCS Open



Easy to Adopt

An EDM must provide an intuitive user interface to minimize training time and maximize user acceptability. From the system administrator's standpoint, the EDM must be easy to implement and administer, with features such as seamless integration with the network operating system security and replication of the database design.

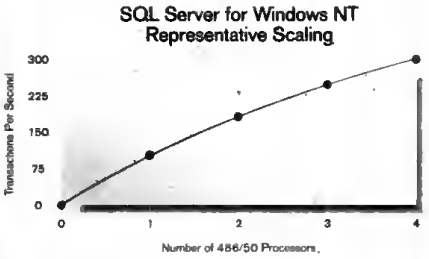
DOCS Open and Microsoft SQL Server for Windows NT are a combination that is particularly easy to adopt. Together they take full advantage of today's Windows environment, resulting in a system that is easy to use and manage, with lower support and administration costs.

Scalability

Because the volume of documents in any organization tends to grow exponentially, an EDM system must be scalable. Some companies choose to adopt EDM in stages, beginning with a departmental pilot project. The

company then scales the implementation up to multi-group and multi-site, where the benefits of EDM become more pronounced, and then further scale it throughout the enterprise. PC DOCS is installed in over 2500 customer sites ranging from dozens to thousands of users who are saving time and money by managing their information efficiently.

Microsoft's SQL Server for Windows NT database has proven to be a very scalable, powerful and reliable platform for deploying DOCS Open. Symmetric multiprocessing and multiplatform capabilities allow SQL Server for Windows NT to dynamically scale to meet the needs of the larger EDM implementations, ensuring that performance and responsiveness are maintained as the demands on it increase.



SQL Server for Windows NT makes efficient use of the CPU, memory and disk I/O such that overall performance continues to increase smoothly as more processors are added.

DOCS Open with Microsoft SQL Server for Windows NT is an ideal solution for departments or workgroups as well as global enterprises with sophisticated WAN searching to find documents on any file server in any location, quickly and easily.

Application Integration

IDC's most recent EDM survey identified integration with existing applications as one of the most frequently requested features in document management systems. To be most effective, an EDM must blend unobtrusively with a user's work. DOCS Open provides the most versatile application integration capabilities through three methods: 1) Out-of-the-box integration with most popular word processor, spreadsheet and e-mail applications, including Microsoft Word for Windows and Microsoft Excel; 2) Universal Application Control through directory monitoring to track files that have been

SunHealth Supports Partners with PC DOCS

The difficulty of tracking and accessing thousands of documents was affecting customer service for a major U.S. health care alliance. So it implemented a document management system that is helping it respond quickly and efficiently to more than 300 partners in the alliance.

Every business wants to find ways to control expenses and increase productivity. And the growing emphasis on health care reform makes health care providers particularly interested in ways to manage their businesses more effectively.

This was the case for SunHealth Alliance. One of the nation's largest and oldest health care alliances of not-for-profit hospitals, SunHealth has partners in 15 states. These partners operate or are affiliated with 30 health care organizations. Together they comprise approximately 72,000 inpatient beds and provide health services worth more than $24 billion annually.

SunHealth deals with hundreds of documents each day — everything from correspondence to research papers. According to Donna Duncan, SunHealth's director of information user services, it was becoming increasingly difficult to manage all these documents efficiently. "The whole point of installing our network was to help people share information," said Duncan. "But that's exactly what we were not able to do."

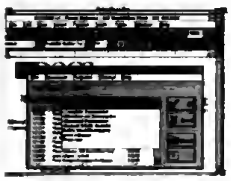
Faced with an ever-growing number of documents and no easy way to share them, SunHealth turned to DOCS Open.

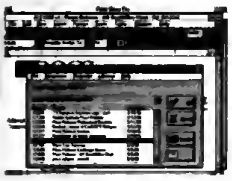
SunHealth runs DOCS Open on Novell NetWare with Microsoft NT Server and SQL Server for Windows NT as the profile database.

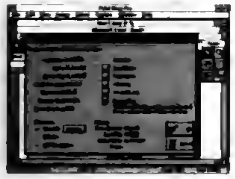
SunHealth is now better equipped to help its partners fulfill the SunHealth vision of improving the health status of people in their communities. "Part of our overall objective is to respond more quickly to our partners' needs," said Duncan. "The DOCS Open system is definitely helping us do that."

created in any other Windows or DOS applications, such as Aldus PageMaker or Corel Draw, and 3) the ability to integrate DOCS Open with legacy software like records management and financial systems using the DO-IT Toolkit (DOCS Open Integration Toolkit)

Customized to Your Business







While an EDM should provide an out of the box solution for the majority of users, there are those with specialized needs that require extensive customization. An EDM must be modifiable to meet the needs of users at both ends of the spectrum.

Customers such as DuPont have made DOCS Open their standard for the entire organization because it provides an out-of-the-box solution for roughly 80% of their users. DOCS Open also has powerful tools to provide the customization and integration required by users with more specialized needs.

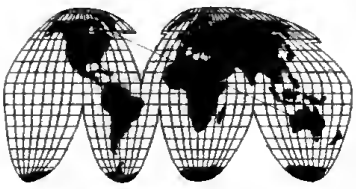
The DOCS Designer, a built-in forms generator package, allows the screens and database structure within DOCS Open to be quickly and easily tailored to the needs of different organizations and different departments. The DO-IT Toolkit is an application development environment that provides integration APIs in the form of DLLs, and OLE Automation. This allows MIS departments to create custom front-ends and extend the capabilities of DOCS Open with PowerBuilder, Visual Basic, C++, or any other OLE Automation-enabled programming language.

With the DO-IT Toolkit, the API set allows development of customized applications in a fraction of the time of other document management systems, which means faster implementation and lower deployment costs.

Mobile EDM for Global Document Access

An EDM system must accommodate mobile computing. The corporate knowledge base must be easy to access for not only workers in the office but also for those on the road. Mobile users today must be able to take a document

Global Document Searching



set on a notebook and have total document management functionality. Back at the office, the edited documents must be synchronized to reflect the changes and the new documents added.

PC DOCS has designed DOCS Open to provide seamless operation whether on the network or on the road. DOCS Mobile is a fully functioning document management system that runs on a Windows-based notebook and controls check-in and check-out of documents from DOCS Open's network based library.

The PC DOCS/Microsoft Connection

The partnership between PC DOCS and Microsoft brings to customers tight integration between DOCS Open and both the Microsoft suite of applications as well as the BackOffice suite, including Microsoft NT Server and SQL Server for Windows NT.

Microsoft SQL Server for Windows NT, a shrink-wrapped open database, makes it easy for users to install EDM software, to easily do performance monitoring and systems management, and to scale document management functions across the enterprise.

Customers have two options for SQL Server for NT: They can purchase a ready-to-run version of DOCS Open that is bundled with SQL Server for Windows NT or they can purchase SQL Server for Windows NT directly through the Microsoft channel.

One of the traditional strengths of DOCS Open is its tight integration with network-level security offered by vendors of networking products. With V2.5, DOCS Open integrates with Microsoft Windows NT Server, allowing organizations to seamlessly take advantage of advanced network operating system features in NT Server such as C2 level security.

In conclusion, organizations today are realizing that their business-critical information must be managed efficiently. The DOCS Open/Microsoft solution makes industrial strength enterprise document management a reality.

Air Force Flies With PC DOCS

The U.S. Air Force is replacing its early warning satellite system. This system, which dates from the 1950s, detects launches of ballistic missiles worldwide and notifies the U.S. military. Work on the new satellite system began in 1993, when the Los Angeles Air Force Base (LAAFB) embarked on the Space-based Early Warning System (SPEWS). For the $20 billion project, an open, scalable and customizable EDM solution was critical to the Air Force Space-based Missile Command Center.

The Request for Proposal for SPEWS was a complex 250+-page document with text and diagrams that needed input from Air Force staff in Los Angeles, Washington, D.C. and Colorado Springs, Colo. Creating the RFP was itself a test. Each person working on the RFP used a standalone word processor, so creating a unified document by swapping disks or hard copy was a gargantuan task. Keeping track of the latest versions so that erroneous information was not used was the biggest worry.

LAAFB first implemented a document management system that used a proprietary database, but months later switched to PC DOCS 1.0. The change was made according to Air Force Lt. Mike Alford, chief of development for infrastructure and business practices in the SPEWS program, because the original EDM system was not SQL-based. "We wanted to be able to customize the solution and to have the highest degree of data integrity — both of which SQL and PC DOCS offered," he said. LAAFB also chose PC DOCS for its ease of use, its desktop approach with folders, its search capabilities and its openness in supporting network operating systems and databases, especially Microsoft NT SQL Server.

> "We spend less time looking for information and more time working with it."

Alford said that searches can now be done across not only Microsoft NT SQL Server, which runs on the NT Server operating system at both the L.A. and D.C. sites, but also Oracle 7 on a NetWare 3.12 network in Colorado. "We spend less time looking for information and more time working with it," he said.

For the LAAFB, certain DOCS Open capabilities were especially attractive. DOCS Open can track up to 99 versions and 26 subversions, which all are date-stamped and have a field for user comments. It also works from within applications such as those in the Microsoft Office suite. DOCS Open does not change how Microsoft Word or Office applications work, but integrates with them to manage documents.

DOCS Open has two levels of full-text searching. It contains a full-text engine for Boolean operators, phrase and proximity searching. Users also have the option of indexing without phrase and proximity searching capabilities, which reduces indexing overhead. For applications requiring more advanced searching, DOCS Open has APIs that allow it to be used with third-party full-text searching products.

Budget constraints forced the Air Force to pull the plug on the satellite project. But its legacy lived on. The PC DOCS system was used as a benchmark across the Air Force as the model for how to efficiently complete an RFP. And when a new satellite project was subsequently revived, data from the first proposal was incorporated into a second, $26 billion proposal that is now being reviewed by potential bidders.

"We were able to reuse the data from the first document, which is vital because there was a new group of people writing the second RFP," and turnover in the military is very high, Alford said.

For that RFP, the Air Force used DOCS Open. Because the software's application development capability supports OLE Automation, MIS departments with Visual Basic, PowerBuilder or other OLE Automation-enabled languages can integrate in-house applications with DOCS Open 2.5. "Object-oriented features are important," Alford said. "We are developing our own executive information system."

EDM becomes more critical as data sharing needs escalate. LAAFB bought DOCS Open for one vital project, has extended use of the product to other divisions and will soon implement workflow. "DOCS Open's scalability has allowed us to expand to about 1,000 seats on base," Alford said.

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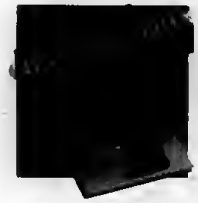

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DOCUMENT ORGANIZATION & CONTROL SYSTEM

Microsoft

DOCS OPEN ENTERPRISE DOCUMENT MANAGEMENT MICROSOFT SQL SERVER FOR WINDOWS NT

DOCS OPEN ENTERPRISE DOCUMENT MANAGEMENT MICROSOFT SQL SERVER FOR WINDOWS NT

8:30 AM
Arrive at work. Hear strange noise down the hall.

8:35 AM
Tiptoe down hallway to investigate.

wum pa da wum pa da wu

8:37 AM
It's the printer trying to speak.

8:38 AM
It's Greek to you.
But you bought IBM, so you get IBM service.

9:36 AM
They arrive to translate. Printer's saying, "Clean my print head."

10:29 AM
Heads are rolling. But not yours.
Thanks IBM.

Guaranteed response time. A preventive maintenance program to make sure supplies get replenished and printers get cleaned, cared for and just checked out. Now you have a better idea of why our customers sleep well. Whatever your client/server printing needs, we have nine laser and impact workhorses to meet them. Such as our 400-, 800-, and 1200-lpm impact printers: all strong, silent types (only 52 dBA), ideally suited for heavy, continuous use, that you can plug and play on virtually any platform. To enhance your peace of mind, call 1 800 IBM-3333, ext. IA032. Or you can find us on the Internet at printers@vnet.ibm.com

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Workgroup Computing

Lotus optimizes word processor for workgroup use

By Jeffrey Gordon Angus

Lotus Development Corp. has shifted its focus toward workgroup and networked applications, and this new focus certainly shows in its new word processor, Lotus WordPro Edition 96.

While this Windows 3.x release of WordPro retains much of the landscape and tactical style of its predecessor, Ami Pro, the program is optimized for workgroup tasks with well-thought-out tools for editing documents that go through editing or review cycles.

Features that work more smoothly than those in competing Windows 3.x word processors include review, consolidate and markup tools.

The Team Review Assistant establishes the review specifics for a document using a wizard-like approach. The user defines who can process the document, the privileges each reviewer can have and the method of distribution, such as Notes, electronic mail or storage to a file. E-mail options include the Internet.

Document markup and revision tracking are as simple and clean as they can be. The program stores multiple versions by adding only changes rather than the entire document every time. It helps manage the manuscript not only by sharing a single file, but by making it easy to see chronological evolution.

Markup tools, such as "highlighter" and "sticky notes," are as good as those that came in dedicated document markup systems. Sticky notes can hold text com-

WordPro, *page 60*

Experts debate risks of new type of virus

By Gary H. Anthes

■ A new kind of computer virus is making its way around the world via word processing documents, sailing right past conventional virus prevention measures.

Although relatively benign, it is, like any virus, potentially troublesome to detect and remove. It has also sparked concern that it heralds the arrival of a host of variants with more harmful properties.

But despite the grim scenario painted by some virus experts and press accounts, others say the virus, called "WinWord.Concept," is of little concern. They predict it will follow in the footsteps of the "Michelangelo" and "Friday the 13th" viruses, which fizzled after touching off near-hysteria in the information systems community.

WinWord.Concept is a macro, or executable code, that can ride in documents created by Microsoft Corp.'s Word running on Windows, MS-DOS or Macintosh platforms. Word executes the macro when a user opens an infected document.

"The statement 'You can no longer get a virus by reading electronic mail' is no longer true," reported the "Virus Bulletin," a newsletter published in Abingdon, England.

Those who downplay the importance of WinWord.Concept said it lacks a destructive payload, will infect just a single product and is relatively easy to defeat.

"The community of information systems security professionals has repeatedly hurt its own reputation by overreacting to new security threats," said Eugene Schultz, an information security program manager at SRI International in Menlo Park, Calif. "We stirred up considerable fear when the release of SATAN was announced, only to find that SATAN didn't do very much at all. Let's quit saying 'the sky is falling' every time we hear of a new threat."

Antivirus pioneer *Peter Tippett says a virus's mere existence is damaging*

But other experts say there is plenty to worry about. Sarah Gordon, a security analyst at Command Software Systems, Inc. in Jupiter, Fla., and the first per-

Virus, *page 62*

Microsoft Mail scores on-line connection

By Suruchi Mohan

Riding the Internet popularity wave, Worldtalk Corp. has announced the availability of NetConnex 3.5, a software package that connects Microsoft Corp.'s Mail to on-line services.

NetConnex is a Simple Mail Transport Protocol/Multipurpose Internet Mail Extension (SMTP/MIME) gateway from Los Gatos, Calif.-based Worldtalk. MIME support lets users send and receive multimedia attachments. The NetConnex package is Microsoft Windows NT-based and supports Microsoft Mail 3.2 and 3.5.

"In some respects, the NetConnex SMTP/MIME connector is excellent for those Microsoft Mail 3.x sites that want to move to NT before Exchange is ready and need/want to put everything on one box," said Karl Wong, an analyst at Dataquest, Inc. in San Jose, Calif.

That is the case at GeoGraphix, Inc., a developer of software applications for the oil industry in Denver. Bryan Autrey, a communications engineer at GeoGraphix, said at least half of his company is using the Microsoft Exchange client that came with Windows 95 against a Microsoft Mail 3.5 server. GeoGraphix will upgrade to Exchange when it ships by the end of the year, but users need Internet mail now, Autrey said.

A switch in time

In keeping with its interconnectivity theme, Worldtalk will announce a Windows NT-based switch by the middle of next year. This will provide the same type of functionality as Lotus Development Corp.'s Lotus Messaging Switch, which translates messages from different systems.

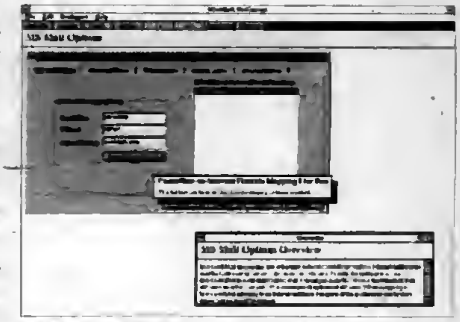
A single account

Most employees at GeoGraphix have had to use one main Internet account. "I would have to call the Internet provider daily, try to figure out who the mail [was intended for] and then send it as a [Microsoft Mail] attachment to the person. It was quite a chore," Autrey said.

In addition to being slow and inefficient, this process meant that Autrey, as the mail administrator, had to read everyone's mail to figure out where to send it. No one took kindly to that.

Now, Autrey runs NetConnex on an NT box. He has also set up a Point-to-Point Protocol connection to the service provider.

When incoming mail hits the service provider, it is routed to the connector, which decrypts the attachments and posts the message to individual mailboxes.



Worldtalk's NetConnex 3.5 *routes Internet mail messages to individual mailboxes*

But Mike Bethany, information systems director at Micro House International, Inc. in Boulder, Colo., didn't gush quite as much about the product.

"The first beta was really bad. The second one appears to work better [because] it is easier to install. But it keeps crashing every three hours or at least twice a day," he said.

Further, Bethany said, when the system goes down, it doesn't notify the administrator. Bethany said he realized it was a beta version and hoped the company would fix the crashing problem in the final release. But he added that he liked its simplicity and ease of installation.

Worldtalk, while acknowledging problems with the initial beta, said it fixed all major problems before shipping the final product.

"We've been jamming on every inquiry as it comes in," said Sathvik Krishnamurthy, a product line manager at Worldtalk. "We feel very good about it."

The product is priced at $995 for the first post office and $595 for each additional post office.

Gates takes agenda to Europe

Microsoft chairman says company will turn emphasis to NT

By Cara A. Cunningham
PARIS

Now that Windows 95 is out the door, Microsoft Corp will turn its attention to promoting Windows NT, exploiting the Internet and expanding social interfaces

Following the late August release of Windows 95 in the U.S., Microsoft chairman and chief executive officer Bill Gates toured Europe to launch the operating system in major markets. Gates also answered questions about the company's future priorities at a series of press conferences.

On Microsoft's plate

- Pumping up Windows NT visibility
- Delivering more Internet-related products, including turning Windows NT into an Internet server
- Developing better "social" interfaces, such as Bob

First on the company's to-do list is pumping up the visibility of Windows NT Workstation and Windows NT Server, the end-user and server versions of Microsoft's 32-bit operating system. The products haven't had great success.

"Windows NT is where Windows was in 1990," Gates said. "In 1990, you could have said Windows was going to be an overwhelming success, but the numbers didn't show it."

Microsoft will strive to make Windows NT Server as popular on corporate servers as Windows 95 will be on the desktop, Gates said.

Windows NT and Windows 95 share the same architecture. Both are 32-bit programs that can run the same software packages and share application programming interfaces, Gates said The anticipated success of Windows 95 will therefore help NT on the server, he said.

While Gates made it clear that he expects corporations to run Windows 95 on the desktop and Windows NT Server on servers, he was vague at first regarding who should run Windows NT Workstation. "If you know why you want Windows NT, use it. If you don't, use Windows 95," he said He later clarified by recommending that users who need more capabilities than Windows 95 offers, and have more system resources, consider Windows NT Workstation.

The Windows 95 user interface, or shell, will be a part of the next version of Windows NT, Gates said. However, he declined to offer a delivery date for this release.

The Internet is also a high priority for Microsoft.

While the Windows 95 development group will continuously update the Internet browser, the Windows NT group will gear its product to be an Internet server, Gates said. Developers for applications such as Word and Publish will add features to help users build documents for the internet, he said.

Gates reacted strongly to the suggestion that Microsoft is trying to control access to the internet by dictating which networking protocols should be used.

"We will support in our browser any protocols that people want to use on the Internet. No one will ever control Internet protocols," he said.

Gates said the runtime version of Microsoft's Internet authoring tool, currently under development and referred to as Blackbird, will be made available at no charge to users. Also, Windows NT server will function as any type of Internet server, not just a server for The Microsoft Network (MSN).

In reaction to what he labeled confusion in the marketplace, Gates took care to distinguish MSN from the Internet. "Microsoft Network is a part of the Internet; it's a community that exists on the Internet," he said

Microsoft early next year plans to offer MSN content to all users who access the Internet. It will charge only a subscription fee and waive the hourly telecommunications fee, Gates said.

Microsoft's priority list prompted questions about how wide the company's product line will stretch. Gates said Microsoft will stay close to its roots as a software publisher. "Microsoft is focused on creating great software products and helping people to use great software products," he said.

Cunningham writes for the IDG News Service in Paris

What about Bob?

Microsoft's plans call for improving what chairman and CEO Bill Gates calls social interfaces. "I don't think today's user interface will be the interface of the future," he said, referring to the menus and dialog boxes in current software that many users find confusing. In January, the company released Bob, an interface that operates on Windows 3.1, to help novice users navigate the system. Gates said Microsoft will release a Windows 95 version of Bob, although he offered no time frame.

Gates and Oracle's Larry Ellison face off. See story page 68.

WordPro

CONTINUED FROM PAGE 59

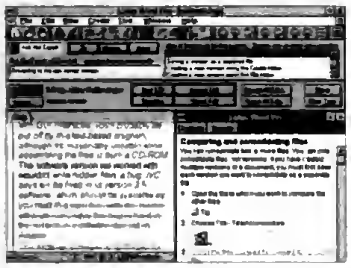
ments, sound, graphics and animation objects.

In revision-viewing mode, as is the case with any high-end Windows word processor, you can see the revisions with their arcane add/delete conventions. WordPro, however, features easy-to-read tags with the name of the editor who marked the text and, optionally, traditional editors' marks.

WordPro review

Smart choice

WordPro is among the new Lotus applications that include SmartMasters. SmartMasters go beyond templates by setting up entire documents with cells for entering specific content. For example, a newsletter template has cells for titles, logos and articles. There are dozens of SmartMasters for a range of tasks. Most projects have several choices, so it is likely you can find one that is tastefully done and good enough to work with.



Among WordPro's strengths *is the attribution of changes to the appropriate editor*

The SmartMasters are, however, very slow to open and use. Users who bring up a complex SmartMaster and expect it to open as quickly as an empty new file are in for a big shock.

The product's spell checking function, like those of some competitors, can correct spelling mistakes as the user is typing But the interface for managing the addition of "personal" typos is very smooth with WordPro.

The batch spell checker and other features were designed like a dashboard panel at the top of the document editing window. It is a remarkably effective and compact design.

The on-line help system is first-rate, and the "Ask the expert" feature, which looks for topics based on questions you ask, works well. It selects a handful of topics and guesses the best one to look at first.

One feature I hadn't seen used well before is the divider tabs that separate pieces of the document file. They are like the divider tabs that separate pages on a spreadsheet but they can be used for many different purposes, such as chapters, a table of contents or index. The divider tabs can make it pretty quick work to navigate a large complex document

WordPro is big and feature-packed enough to pose a serious learning task for new users. The size and flexibility has another side effect that could deter some users: This version is slow. And while all Windows word processors may be slow, this one is slow enough to make even Windows users object.

A few glitches

We ran our WordPro tests on a 50-MHz Intel Corp. 1486-based PC. We experienced some errors that forced WordPro to shut down when we had several programs running simultaneously and were using some of the layered on-line help

Previously, only dedicated markup packages had the range of workgroup features WordPro does, but WordPro has all that and a modern, smart word processor with page layout features. Its ease-of-use and features do a good job supporting stand-alone users, too.

If your aim is to take advantage of the best in workgroup editing, WordPro is in a class of its own. If you have more stand-alone users who will be sensitive to this version's mediocre speed and occasional errors, you should look at a subsequent version of the product

Briefs

Windows 95 backup

Novastor Corp. in Simi Valley, Calif., last week unveiled a Microsoft Corp. Windows 95-compatible version of its NovaBack backup software. NovaBack for Win 95 supports a wide range of tape drives and controllers. It costs $149.

Novell bids for security rating

Novell, Inc. said recently that NetWare 4.1 has entered so-called C2 evaluation at the National Computer Security Center (NCSC). The NCSC is part of the National Security Agency. Novell hopes NetWare 4.1 will be the first general purpose network operating system to receive a Trusted Network Interpretation Class C2 rating from the NCSC. The C2 security requirement has four components: identification and authentication, discretionary access control, audit and object reuse.

The Most backup

Most, Inc. in Cypress, Calif., has delivered the industry's first International Standards Organization-standard 2.6G-byte, 5¼-inch magneto-optical disk drive. The drive is aimed at applications in which high capacity and fast retrieval are essential. The drive is backward-compatible with 650M- and 1.3G-byte cartridges. It is expected to cost less than $2,600.

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Unisys did more than help Signet Bank build a better check clearing process.

We helped them build a better relationship with USF&G Insurance.

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Signet approached one of their most valued clients, USF&G–a premier insurance company also dedicated to superior service. When Signet described an idea for image-based check acceptance, USF&G listened.

Signet now delivers check images to USF&G over phone lines the day of receipt. As a result, USF&G improved the efficiency of check acceptance and made the claims process faster.

CUSTOMERIZE is one example of what Unisys means by information management–using information as an asset to make an enterprise more competitive and responsive. For Signet, it resulted in a stronger bond with a key customer. To receive a copy of "Customerize for Growth and Profitability," reach us on the Internet at **http://www.unisys.com/adv** or call **1-800-874-8647, ext. 24**.

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THE INFORMATION MANAGEMENT COMPANY

Briefs

Bank buys Mezzanine

Bankers Trust Co. has purchased Bellevue, Wash.-based Saros Corp.'s Mezzanine library software. The software will manage the entire life cycle of Bankers Trust documents for users at the bank's 50 worldwide offices.

Optika goes south

Optika Imaging Systems, Inc.'s document management and workflow software is being installed at Petrobas, a Brazilian petroleum company and the largest corporation in South America. The system automates the human resources, data processing and public relations departments and allows about 100 users to access it. The Colorado Springs company plans to soon extend the software throughout Petrobas.

Platinum takes Locus

Platinum Technology, Inc. in Oakbrook Terrace, Ill., has completed an acquisition of Locus Computing Corp., a consultancy in Inglewood, Calif., that focuses on open systems software. The Locus deal is part of a recent buying spree by Platinum, which is putting together an enterprise systems management offering to augment its traditional mainframe database utilities business.

SunSoft spreads out

SunSoft, Inc. in Mountain View, Calif., has announced that its Solstice Backup 4.1 software is now available for Intel Corp. x86 server platforms as well as Sun Microsystems, Inc. SPARC servers. Solstice Backup 4.1 is the follow-on release to Sun's NetWorker for Solaris and is based on technology from Legato Systems, Inc. in Palo Alto, Calif. A 10-client Solstice Backup license is priced at $2,500. Sun also introduced Solstice Archive, an application for organizing files for long-term storage. Solstice Archive requires a concurrent Solstice Backup license and is priced at $2,500.

Virus

CONTINUED FROM PAGE 59

son to study the new virus, said, "Anyone who says this has been hyped has not been talking to users. I've gotten hundreds of messages from users worldwide saying they are infected."

Command Software developed a free product that will detect, remove and prevent infection by the virus (see related story at right).

Gordon said variants with destructive payloads are already being created. She also said users eventually will need to scan documents — not just executable code, as in the past — with virus scanning software. That could significantly increase the amount of computer time needed for scanning, she said.

Antivirus pioneer Peter Tippett, president of the National Computer Security Association in Carlisle, Pa., said the fact that WinWord.Concept does no direct damage wins it no favor with him. "I can prove that 90% of the cost of a virus infection is not due to damage or data loss, but simply due to the effort required to find the virus and get rid of it," he said.

Tippett said most of the 6,000 known viruses won't spread across networks with the most rudimentary security features. Document-resident "macro viruses," however, won't be stopped by the security features on most LANs, he said.

Putting a destructive payload into a macro virus is dismayingly easy, Tippett added. Macros are far easier to write than the assembler and C++ programs that constitute most viruses, he said.

"We don't want to create a panic over this," Gordon said, "but this is a new problem we have to deal with."

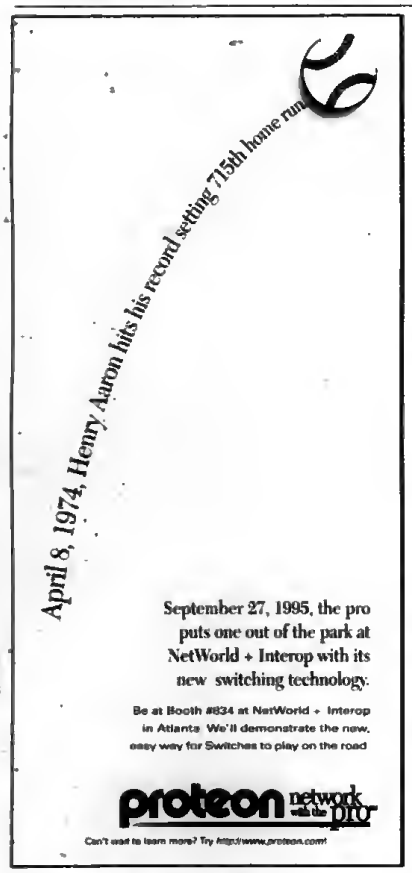
Fighting back

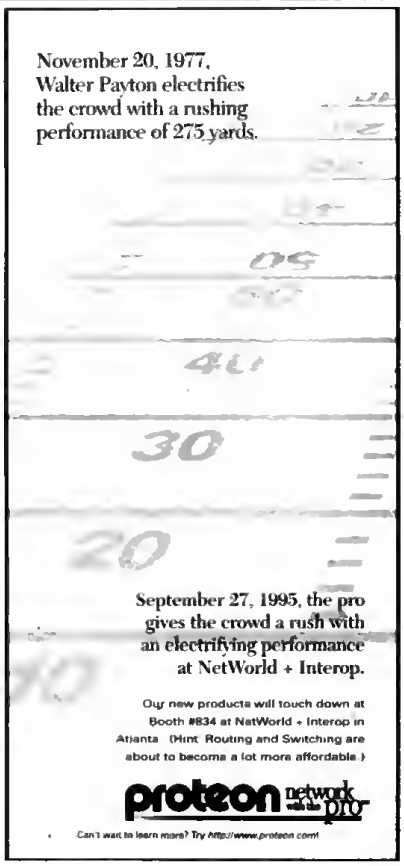
How to deal with the WinWord.Concept virus:

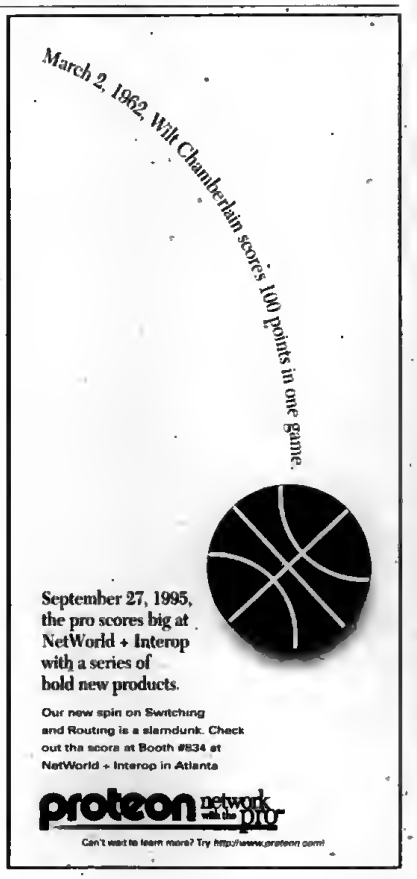
Short term: Load a dummy macro named "PayLoad." This will fool the virus into thinking that your system is already infected.

Medium term: Download Wvfix.zip, a free product that will detect, remove and prevent infection by the virus. It is available via anonymous file transfer protocol (FTP) from ftp.assumedown.com or from the National Computer Security Association's (NCSA) Anti-Virus Vendor Forum on CompuServe by typing "GO NCSAVIRUS."

Long term: Upgrade your virus scanning software to a version that detects the virus and make sure it runs on your network servers and workstations. According to the NCSA, only 10% of corporate LANs have antivirus protection running all the time. — *Gary H. Anthes*







Ask most Lotus® Notes® users, and they'll tell you the benefits speak for themselves: Custom business applications that slash cycle times, redefine operational efficiency and eliminate paper. Financial returns that International Data Corporation calls "simply staggering."† A rapid application development environment that is quickly becoming the client/server tool of choice.

Yet to a systems administrator, all this collaborative computing can imply huge challenges — not to mention the potential hassles in administering far-flung networks. Without a reliable and manageable infrastructure for messaging and groupware, and the tools to maintain it, no distributed computing architecture can live up to its business potential.

What IS teams need are practical ways to:

- Deliver reliable systems for users while minimizing costs
- Develop and deploy mission-critical applications across geographies and heterogeneous computing platforms
- Provide efficient and responsive end user support.

For all these reasons, Lotus Notes offers elegant solutions to the common challenges around managing groupware and messaging networks.

The Notes View on Network Management

Trying to manage a network without real-time information on traffic flows is like working with a blindfold. NotesView,™ Lotus' graphical management tool, literally gives administrators a picture of how a network is functioning — including statistics on mail delivery, replication, and database server performance. Alert mechanisms point out mail routing bottlenecks or disk space availability issues, allowing administrators to act *before* end user service levels are affected. Any server in the Notes environment can be accessed from a single administrative console, allowing you to centralize server support while retaining the flexibility to locate servers for optimal performance or minimal telecommunications costs.

NotesView also supports the industry-standard management protocol, SNMP, allowing you to leverage the expertise of your IS staff and a wide array of SNMP-based tools.

Application Development and Deployment

Notes comes with an integrated application development environment that allows you to rapidly develop robust workflow applications that can integrate with your legacy systems and even access external data sources like the World Wide Web. Notes' unique replication technology distributes applications and data across diverse computing platforms and geographies, and synchronizes Notes directories. As a result, administrators can manage application deployment from anywhere in the network.

Notes also lets you automate repetitive administrative actions, such as recertifying user IDs. Moreover, Notes lets you centralize administrative tasks such as setting up replication topologies for the enterprise, while tasks such as adding new users can be performed at the local level.

The Product Is the Solution

Custom help desk applications built with Notes technology are available from Lotus or many of the over 10,000 Notes business partners. Notes' built-in workflow capabilities can route service requests to the appropriate support specialist automatically, even paging them if necessary, and Notes lets you track these calls all the way through to resolution. Finally, Notes lets you store a complete history of each incident in a secure database, providing a rich knowledge warehouse for the future.

The bottom line for today's administrators is that the better you can manage your systems, the more valuable you become to your business units.

Managing groupware cost of ownership is only one way that Lotus is helping thousands of organizations attain competitive advantage. And they're doing it with one product. Lotus Notes.

Lotus
Working Together®

This is the fifth in a series of short essays on the benefits of groupware technology. To receive a bound set of all six essays, please call 1-800-828-7086 *ext.* A965. *Or explore Lotus on the World Wide Web at* www.lotus.com. *©1995 Lotus Development Corporation, an IBM subsidiary, 55 Cambridge Parkway, Cambridge, MA 02142. All rights reserved. Lotus, Lotus Notes and Working Together are registered trademarks and Notes View is a trademark of Lotus Development Corporation. †Lotus Notes: Agent of Change, International Data Corporation, 1994.*

Lantronix Corp. has introduced Lantronix Remote Server 2 (LRS2), a remote access server.

According to the Irvine, Calif., company, LRS2 is a two-port, stand-alone server with full-featured dial-up routing for IPX or TCP/IP networks. The server enables LAN-to-LAN, remote node, remote control application and internet access over regular telephone lines.

LRS2 routes IP and IPX and supports both the Point-to-Point Protocol and the Serial Line Interface Protocol. For large data transfers, LRS2's bandwidth-on-demand feature automatically brings up a second line for increased throughput. It also offers the following link management features for LAN-to-LAN applications: inactivity time-out, packet filtering, time-based filtering and protocol spoofing. It includes multilevel security features.

LRS2 costs $995.

▶ *Lantronix*
(714) 453-3990

FTP Software, Inc. has introduced InterDrive 95, a Network File System (NFS) client software product for Microsoft Corp.'s Windows 95.

According to the Andover, Mass., company, InterDrive 95 gives users a transparent network resource for sharing applications, information and devices, including CD-ROM drives and printers. It is fully integrated into the Windows 95 user interface.

InterDrive 95 is a 32-bit, multithreaded, kernel-space NFS client that works at the same level of priority as the operating system. It works with either FTP Software or Windows 95's TCP/IP kernel and interoperates with other network operating systems.

InterDrive 95 is available as a stand-alone product. Single-user pricing starts at $249.

▶ *FTP Software*
(508) 685-4000

Inmagic, Inc. has unveiled DB/TextWorks, a text-based management system for Windows.

According to the Woburn, Mass., company, DB/TextWorks is a database management system designed to manage text that resides on PCs, LANs or WANs. It lets individuals, workgroups or enterprises store, access, display and report textual information.

DB/TextWorks allows instant text retrieval and provides an index for all fields in a text base, variable length fields, repeating fields designed to simplify text-based design and linked text bases, which are designed to reduce maintenance by eliminating redundant data. DB/TextWorks requires Windows 3.1 and at least 4M bytes of RAM.

Pricing for a single-user license of DB/TextWorks starts at $795. LAN pricing starts at $2,900 for a five-user license.

▶ *Inmagic*
(617) 938-4442

The Mesa Group, Inc. has introduced Conference+, a workgroup messaging product for Microsoft Corp.'s Mail users.

According to the Newton, Mass., company, Conference+ lets organizations deploy applications, including tracking databases, project discussions, policies and procedures manuals within Microsoft Mail.

Conference+ requires 2M bytes of RAM, Windows 3.1 or later and Mail for PC Networks 3.0 or later.

Pricing for Conference+ starts at $33 per user.

▶ *The Mesa Group*
(617) 964-7400

The Bristol Group Ltd. has introduced the IsoFax server, a Microsoft Corp. fax-compliant open systems fax server.

According to the Larkspur, Calif., company, the IsoFax server supports clients of both Unix and Microsoft's Windows 95 and allows for high fax volume through cross platform networks. IsoFax provides Windows 95 users with a central modem pool that can support up to 100 modems per server.

It supports Hewlett-Packard Co.'s 9000 series running HP-UX, IBM's RS/6000 and Sun Microsystems, Inc.'s SPARC.

Pricing for the IsoFax server with the IsoFax/Microsoft bridge option starts at $1,990.

▶ *The Bristol Group*
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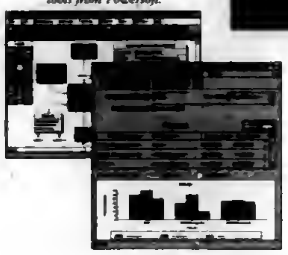

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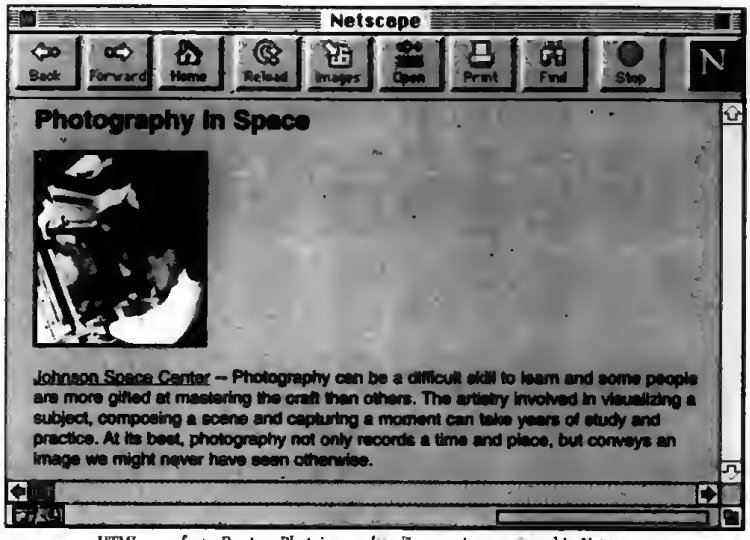

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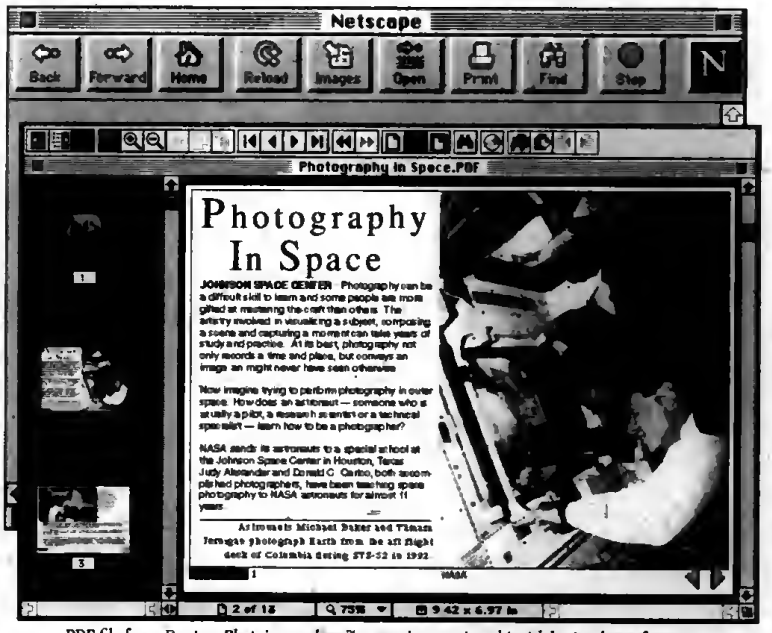

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Telecommuting ramps up

Sun/Pacific Bell make pledge to beat obstacles

By Neal Weinberg

Sun Microsystems, Inc., has been selling Integrated Services Digital Network (ISDN) products for years. Now the company is bringing the benefits of ISDN home.

Sun and Pacific Bell are teaming up on what they say is one of largest corporate implementations of ISDN, a project to deliver 128K bit/sec. bandwidth into the dens and studies of 440 Sun employees in the Mountain View, Calif., area.

ISDN is the key to widespread acceptance of telecommuting, according to Bill Lee, vice president of engineering at Sun's networking business unit. The advantage of ISDN, compared with typical 14.4K bit/sec. or 28.8K bit/sec. modems, is that it allows workers at home to experience the same look and feel of being in the office, Lee said. They want to do things just as fast, have the same access to data and have the same ability to multitask as they would in the office.

"Fundamentally, you need a bigger pipe; that's what ISDN provides," said Michael Durr, an analyst at Michael Durr and Associates in Cape Coral, Fla.

Obstacles eliminated

Pacific Bell has pledged to bring the service to all employees selected for the program no matter where they live. This pledge sweeps away many of the roadblocks, such as unavailability of service in rural locations, incompatible equipment, difficulty ordering service and problems configuring the system, that typically prevent people from getting ISDN at home.

The companies have estab-

Sun/Pacific Bell, *page 75*

Sun's telecommuting program

1. Gives employees more flexibility
2. Helps company retain and recruit workers
3. Reduces traffic and auto emissions

MCI takes a look at the benefits of cable links

By Mindy Blodgett

The only thing Craig Walters missed as a pioneering telecommuter was the gossip.

"It was fantastic," Walters, a senior systems analyst at MCI Communications Corp., said of the telecommuting experience.

He was one of 26 MCI workers who participated in what was billed as the nation's first large-scale cable telecommuting pilot, in Colorado Springs.

"I really felt that my productivity was raised. There are so many fewer distractions at home," he said.

Network MCI Services, a subsidiary of MCI; Digital Equipment Corp.; and Colorado Springs Cablevision, owned by Century Communications Corp., jointly sponsored a five-month telecommuting project testing cable television lines.

The MCI employees used PCs at home connected to the LAN through 10M bit/sec. cable network using Digital's ChannelWorks products, including modems.

Increased bandwidth

While many telecommuters use standard telephone lines or Integrated Services Digital Network (ISDN) lines to link their home offices to the corporate LAN, MCI determined that wider bandwidth was needed for the robust connectivity and speed requirements of software developers and other mission-critical workers.

Brian Plackis, manager of technical planning at MCI, said through the ca-

MCI, *page 75*

TELEPHONE VS. TELEVISION

The advantages of using cable television lines instead of standard telephone lines or ISDN for MCI's pilot telecommuting project:

- **Cheaper** because cable lines were already installed; no need to install ISDN lines.
- **Faster** when used in conjunction with Digital's modem. It achieved a connectivity rate of 10M bit/sec. It's much faster than standard telephone lines or ISDN.
- **Wider** bandwidth lets home users use multiple applications.

Start-up introduces ATM analysis package

By Bob Wallace

Start-up Net2Net Corp. this week will announce Cell Blaster, a sorely needed package that lets users analyze and manage switches and connections in Asynchronous Transfer Mode (ATM) networks.

Analysts said ATM analysis tools such as Cell Blaster will help drive user acceptance of the high-speed switching technology.

High-speed switching

"For ATM to go prime time, users have to be able to see what's going on in their test bed networks," said Charlie Robbins, president of Aberdeen Group, Inc., a Boston consultancy. "Cell Blaster is an easy-to-use system with a Windows front end that gives users a clear and detailed view of network performance data."

Cell Blaster combines proprietary hardware and software to transform any Intel Corp. Pentium-based PC into a powerful ATM analysis tool that can monitor, filter and capture traffic from ATM networks.

That data can be imported from Cell Blaster into any application compliant with Microsoft Corp.'s OLE facility. Users can write custom applications to a Net2Net application programming interface.

The link will allow users to display network performance information to spot trends in network usage and perform capacity planning.

"This product is exactly what early ATM users have been waiting for," said Skip MacAskill, a senior research analyst at Gartner Group, Inc., a consulting and research firm in Stamford, Conn. "Cell Blaster plugs a major hole in network management. These folks are on the right track."

One former user said products such as Cell Blaster could help convert fence-sitters into early ATM adopters.

"Having flexible ATM network analysis products would definitely help make believers out of skeptics who think there's nothing out there," said Maralyn Rosenblatt, president of MIR Consulting in Canoga Park, Calif. She was recently a network manager at Lockheed Corp. in Calabassas, Calif.

Net2Net's Cell Blaster *monitors, filters and captures traffic from ATM networks*

Stiff competition

Net2Net has the package to beat in the nascent ATM analysis and performance tool market, according to Robbins. He added that a few vendors such as Hewlett-Packard Co. and Network General Corp. have been working in this area.

"Cell Blaster is built on a platform that users like, as opposed to HP's Unix workstation package," he said.

Cell Blaster comes with plug-in modules needed to monitor performance of ports on an ATM switch. Initially, Net2Net is offering modules that run at 45M bit/sec. or 155M bit/sec., but it plans units for ATM at 1.544M bit/sec. and 25M bit/sec.

An entry-level Cell Blaster with one port costs $39,995, with additional ports priced at $22,000 each, a competitive price in today's market.

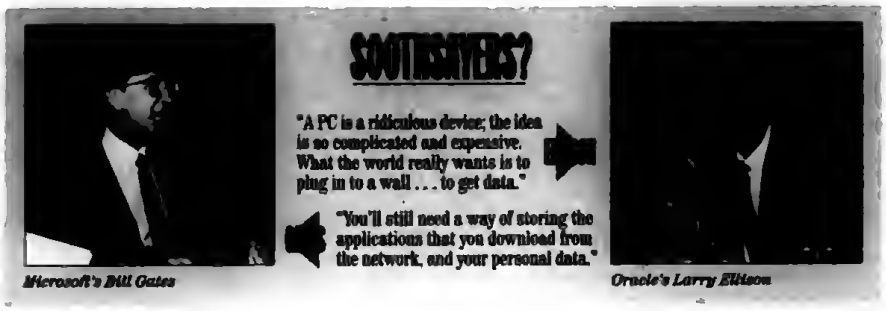
Ellison, Gates spar on info highway

By Marc Ferranti
PARIS

It's the network, stupid. Even Bill Gates and Larry Ellison could agree on that, though they shared little else in recent addresses here.

Speaking at the European IT Forum 1995, sponsored by International Data Corp. (IDC), Gates, the chairman and chief executive officer of Microsoft Corp., and Ellison, who chairs Oracle Corp., offered vastly different visions of the future.

But they both said the industry is moving from a desktop-centric to a network-centric view of computing with help from the Internet.



Microsoft's Bill Gates
Oracle's Larry Ellison

Ellison brings the noise

Ellison's mouth roared first. He showed off upcoming Oracle Web server and browser software, due out in November as separate tools, and part of Oracle 7.3, which is tentatively poised for release in November as well.

Ellison said Oracle holds the upper hand in delivering multimedia content over the Internet because of its focus on database technology.

"Oracle does one thing, and one thing only, very well — we deliver vast amounts of data to users," he said.

Ellison, in demonstrating Oracle's forthcoming World Wide Web software, dialed over an Integrated Services Digital Network line into the company's Web server, located in California. He proceeded to play overseas disc jockey, playing songs from a music library and even a music video.

The new products will use Java, a Sun Microsystems, Inc Web programming language that allows users to download executable programs from the Internet or other networks. The browser is also compatible with Netscape Communications Corp.'s browser, Ellison added.

Ellison also predicted that the world would soon be a post-PC place. Instead, software, applications and content will reside on the network, and users will have a type of "Internet appliance" — effectively, terminals — in their homes to select what they want from the network. Driving this scenario is the cost of PC hardware and support services, which is up to $5,000 per year per desktop, he said.

"A PC is a ridiculous device; the idea is so complicated and expensive," he said. "What the world really wants is to plug into a wall to get electronic power and plug in to get data."

Gates baits

Gates, however, pooh-poohed the notion of a post-PC generation.

"You'll still need a way of storing the applications that you download from the network and your personal data," he said.

PCs will be transformed but in a different way. "Multimedia is becoming standard on PCs," Gates said. "The key theme is the idea of the PC as communication tool."

This will yield PCs that look different from today's models. "Wallet PCs will be carried around, and you'll see kiosk PCs and portable PCs that will all be hooked up into a unified network that provides a rich set of applications," Gates predicted.

PDA plan

Gates sang a familiar song, about a Microsoft personal digital assistant (PDA). This time, he said, the company will work with a major computer vendor to develop a wallet-size PC in the coming year.

Gates acknowledged that PDA pioneers have largely dwelled in a market desert, but he insisted that Microsoft remains committed to the wallet PC. He said the company plans to codevelop a product priced at less than $500 with good wireless communications abilities and connectivity with PCs.

Ferranti is the IDG News Service's Paris Bureau Chief. Cara A. Cunningham, IDG News Service Paris correspondent, contributed to this report.

IBM puts IS staff to the test

By Kim S. Nash

IBM recently launched an on-line examination to let information systems professionals rate their technology know-how.

The World Wide Web site, at http://webster.ibmlink.ibm.com/usedu/edushome.htm, contains dozens of yes or no questions on more than 35 technical and management topics.

The quiz covers several IBM-related categories, such as AS/400 programming and Notes installation and troubleshooting. But there are some more general sections on basic LAN administration, client/server concepts and other subjects (see chart).

Here is how it works: Users answer a set of yes or no questions about the topics they select. Based on these responses, the page assesses the user's knowledge and recommends appropriate IBM training classes. Also listed are books or on-line materials for further reading.

The self-quiz isn't very complex. Answering either "yes" or "no" to a query such as, "In your best judgment, can you tailor CICS/6000 for use in local application processing?" doesn't reveal a thing about how well the test taker can perform. The yes/no format makes no room for true self-assessment.

That said, however, the site is a quick way to get a handle on areas with which you may need help. And IBM, of course, will be happy to provide that training. The quiz page is part of the IBM Global Campus, an on-line push to make more IS workers aware of IBM's training and education offerings, a spokeswoman for the Armonk, N.Y.-based computer giant said.

PENCILS READY?

The following are sample yes or no questions that IBM uses to determine which courses or reading material testers should study*

MAINFRAME TRANSACTION PROCESSING

1. *Can you develop applications for CICS systems?*
2. *Can you send and receive maps?*
3. *Can you modify VSAM files, SQL databases, temporary storage and transient data queues?*
4. *Can you respond to normal and exceptional conditions from CICS commands?*

NETWORK MANAGEMENT

- *Can you describe LAN and WAN topologies?*
- *Do you understand WAN data link control protocols?*
- *Can you compare SNA and TCP/IP architectures?*

LOTUS NOTES IMPLEMENTATION

1. *Can you install a Notes server, workstation and laptop on an OS/2 system?*
2. *Can you define and maintain replication between Notes servers?*
3. *Can you explain the security features of Notes, such as certification and public/private keys?*

*Questions edited for brevity

Source: IBM's training and education World Wide Web site at http://webster.ibmlink.ibm.com/usedu/edushome.htm

Copyright law held to higher standard

By Elinor Mills

A report released earlier this week by the U.S. Department of Commerce recommends classifying electronic transmissions of documents and software as copies so they will be covered under copyright law.

The report, "Intellectual Property and the National Information Infrastructure," also suggests amending copyright law to do the following:

- Make it a criminal offense to reproduce or distribute copies worth $5,000 or more.
- Make it illegal to manufacture or distribute products designed to decode encrypted software without the consent of the copyright owner.

The report recommended exempting libraries and archives so they could make a limited number of copies for preservation.

"Technology has altered the copyright balance — in some instances in favor of copyright owners, and in others in favor of users," a report summary said. "The goal of the recommendations is to clarify existing law and adapt it where the balance has shifted."

Both the Software Publishers Association and the Business Software Alliance (BSA), which lobby for intellectual property protection for U.S. software companies, hailed the report.

"Creators must know they can transmit data information without the fear of it being stolen en route," BSA President Robert Holleyman said in a statement. "It should also be unlawful to use devices that defeat security features, as recommended in the report."

The recommendations are included in the proposed legislation, according to Bruce Lehman, commissioner of patents and trademarks and chairman of the group that wrote the report.

Mills is a West Coast correspondent for the IDG News Service.

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Megahertz Corp., a subsidiary of U.S. Robotics Corp., has introduced CruiseCard, PC Card modems designed for Apple Computer, Inc. PowerBooks equipped with PC Card slots.

The Salt Lake City firm said there are two versions of CruiseCard: a 28.8K bit/sec. model and a 14.4K bit/sec. model. Both feature an "extendable jack" connector system that provides a fully internal but extendable RJ11 telephone jack on a PC Card modem. This eliminates the need for external connectors.

Both CruiseCard models are equipped with Megahertz's Digital Line Guard. This feature protects the modem from potential damage caused by plugging in to a high-power telephone line, such as a digital private branch exchange.

The 14.4K bit/sec. CruiseCard costs $249. The 28.8K bit/sec. model costs $399.

▶ *Megahertz*
(801) 320-7000

HavenTree Software Ltd. is shipping Nodemap for Windows, a network diagrammer.

According to the Kingston, Ontario, company, Nodemap for Windows automatically detects LAN and WAN configurations and provides management and design tools for Novell, Inc. NetWare network administrators. The product can cross bridges and routers as it interrogates the system for information on file servers, workstations and network segments. Varied views allow users to drill down through levels of detail.

Nodemap for Windows can interface with third-party inventory programs such as Microsoft Corp.'s Diagnostics, Tally Systems Corp.'s NetCensus and Landmark Research International Corp.'s SysInfo to diagnose network problems.

Nodemap for Windows costs $499.

▶ *HavenTree Software*
(613) 544-6035

Telco Systems, Inc. has announced the Series 5000 Frame Relay Optimizer.

According to the Norwood, Mass., company, the Series 5000 Frame Relay Optimizer is a network data-packet compressor that increases the throughput of frame-relay environments by shortening response times, reducing circuit congestion and minimizing dropped packets. It also reduces the amount of data traffic transmitted across frame-relay circuits.

The Series 5000 Frame Relay Optimizer has three compression modes: Sequential Packet Compression, for the most congested links; In-Packet Compression; and Transparent Mode. The product gives network managers flexibility in deploying compression on frame-relay environments.

Pricing for the Series 5000 Frame Relay Optimizer starts at $5,900

▶ *Telco Systems*
(617) 551-0300

Systems and Synchronous, Inc. has unveiled LANSleuth Remote.

According to the Naperville, Ill., company, LANSleuth Remote lets network administrators perform tracing and analysis functions on remote LAN segments via Ethernet or serial connections.

LANSleuth Remote comprises LANSleuth Commander and one or more LANSleuth Satellites.

LANSleuth Remote allows simultaneous viewing of multiple traces or packets within a trace and has a full Windows interface with on-line help and glossary. It features Ping and packet-generation utilities, intelligent filters, triggers and alarms, and it displays real-time statistics while capturing data. It also captures station, network and trend statistics in a readable, customizable matrix format.

Pricing for LANSleuth Remote starts at $1,790

▶ *Systems and Synchronous*
(708) 505-3900

Supra Corp. has introduced Supra Simple Internet, a hardware/software combination for first-time Internet users.

According to the Vancouver, Wash., company, Supra Simple Internet includes a V.34 (28.8K bit/sec.) modem, Supra Mosaic software for World Wide Web browsing and a CD-ROM tutorial.

Pricing for Supra Simple Internet starts at $179.

▶ *Supra*
(360) 604-1400

Theirs.

Vendors back net print service

By Patrick Dryden

A service from a new alliance could ease one major user headache: printing throughout networks of diverse systems and printers

Printxchange, an approach promoted by Digital Equipment Corp., SunSoft, Inc. and Xerox Corp., seeks to provide a common print service in distributed client/server environments.

This service is a basic function of host systems. It lets users easily find the proper printer, application developers control output and managers regain much of the time now drained by print-related problems.

"That would be a tremendous benefit because right now printing is a major time-consuming part of our overall network management effort," said Andrew Hubbell, a systems engineer supporting a network of designers at a top U.S. automaker.

Hubbell, a network manager contracted from systems integrator National TechTeam, Inc. in Dearborn, Mich., spends 25% of his time correcting problems that 300 Unix and PC workstation users experience when accessing eight printers through four print servers.

To enable a manageable print service, Digital, SunSoft and Xerox pledged to adopt an open architecture for print management based on an International Standards Organization standard.

Printxchange will be provided with the Digital Unix and SunSoft Solaris operating systems and in high-end printers from Xerox and Eastman Kodak Co.

Novell, Inc. and Xerox will develop a gateway to help Unix and NetWare users access each other's printing resources.

The companies will demonstrate Printxchange in November and expect to ship products by mid-1996.

Modular print management

The Printxchange print service allows the following functions to reside on one system or several distributed systems across a network:

Client module
Helps users submit print jobs and follow their status

Spooler module
Stores data received from the client in queues for distribution

Supervisor module
Directs queued jobs to appropriate printer; monitors output process and alerts spoolers, users and system managers

New news is good news

"This is good news for heterogeneous environments," said Charles LeCompte, editor/publisher of "Hard Copy Observer," a newsletter in Newtonville, Mass. "The client/server world is begging for solutions to printer problems, so efforts like this are critical."

Printxchange has strong initial representation and a good chance to build broad implementation through porting, gateways and open application programming interfaces, LeCompte said.

The alliance seeks adoption by other operating system, printer and application vendors, or at least interoperability.

"Printxchange isn't limited to Unix but will port to other operating systems," said Howard Lev, Digital's senior product manager for printers. "Our goal is to make this the single transport for distributed printing."

Still, to successfully support enterprise network printing, the alliance must work with "everyone from the mainframes to Microsoft, which is notorious for doing things their own way," said Allen Falcon, president of Boston-based integrator NetSource, Inc.

Falcon said he hopes Printxchange adoption spreads so that networked users and their administrators can rely on the host-like capabilities.

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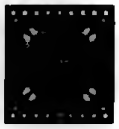

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MCI

CONTINUED FROM PAGE 67

ble links, at-home workers could multitask and log in to Notes.

Like all telecommuting projects, there were people issues and technology issues. For instance, once a week, the cable company took the cable network down for maintenance. Walters said he learned to plan his day around this.

Another problem was remotely managing PCs and workers. Some managers were skeptical about whether telecommuting would work. Those allowed to participate in the pilot were selected with great care, Plackis said.

Plackis said MCI, Digital and Colorado Springs Cablevision are all interested in investigating telecommuting further. Colorado Springs Cablevision plans to deploy fiber-optic backbones to its distribution points, which will yield two-way data communications and increased capacity.

> According to Link Resources Corp., the number of part- and full-time telecommuters in the U.S. reached 9.1 million last year up from 7.6 million in 1993

Conceivably, the three companies could jointly market a telecommuting service, Plackis said.

He added that MCI has extended the trial for a couple more months, but the company isn't sure when it will offer a permanent telecommuting policy.

Promising future

Analysts said the cable network is a promising piece of telecommuting's future. Gil Gordon, an analyst at Gil Gordon Associates in Monmouth Junction, N.J., said the 10M bit/sec. bandwidth inherent in cable networks gives the technology "great" potential if it is strategically combined with the capabilities of a telephone company.

"This kind of bandwidth [with cable] is more and more important because of the applications people are using today," Gordon said. "You are sending video and making large file transfers. At lower speeds, those kinds of applications are clunky. The applications are driving this need for speed and bandwidth."

Cable companies "don't have the switching technology," Gordon said, so "an alliance with a telephone company makes sense."

In a twist of capitalist irony, a phone company and cable company could end up competing against each other, Gordon said.

Firm answers call for 'smart' phones

Air Communications' cellular data fax phone connects users wirelessly

By Mindy Blodgett

■ For mobile users crying out for the ability to wirelessly talk, fax and receive data transmissions through a single device, Air Communications, Inc. says it has the answer.

The Santa Clara, Calif.-based company, a 3-year-old producer of communications technology and devices, recently announced Air Communicator. The cellular data fax phone is the first of its kind.

Available in two models — the Executive and the Lite, costing $995 and $695 respectively — the product is actually an updated version of a device the company released last year. The new versions, which will be shipped next month, let users wirelessly send, receive and store faxes without plugging in to a computer.

Also provided is a serial port for connection to any PC, Macintosh, notebook or personal digital assistant (PDA). The port gives users the ability to send electronic mail or remotely access information.

Initially, the device will be offered by cellular carrier Ameritech Cellular Services in Hoffman Estates, Ill., which will sell the phones under its name in the Midwest for six months. The company is also seeking agreements with other cellular carriers.

Rave reviews

It is a device whose time has come, users said.

Art Prest, vice president of science and technology for the Cellular Telecommunications Industry Association in Washington and a cellular booster, said he uses the earlier version of Air Communicator to plug in to a notebook to check his E-mail.

"You're totally connected," Prest said. "I think you're going to see an increasing need for this type of device. To be able to talk and send data wirelessly will be great. I would definitely be interested in getting the new phone."

Air Communicator *lets users wirelessly send, receive and store faxes*

Air Communicator is based on the company's Air True technology, which leverages the analog cellular network and integrates radio frequency and a modem protocol into one technology.

The company chose to work on the circuit-switched cellular network because of its wide coverage, company officials said.

Surveys of mobile users show that of all mobile devices, including notebooks and PDAs, most want something that integrates voice and data, noted Michael French, an analyst at Link Resources Corp. in New York.

However, Iain Gillott, an analyst at Link in Austin, Texas, said the error rate in sending faxes over analog cellular networks can be high.

> **A phone call away**
>
> The emerging "smart phone" market, made up of cellular phones that integrate organizer capabilities and PDA features, may edge out PDAs altogether, some industry observers say. Geoworks has unveiled a version of its graphical operating system for smart phones, and IBM has released Simon, a cellular phone plus organizer.

Sun/Pacific Bell

CONTINUED FROM PAGE 67

lished a standard network configuration. Pacific Bell is installing the LAN bridge, configuring the network protocols, testing the connection, adding the applications, managing the system and staffing the help desk.

To protect its corporate network, Sun is installing security features so only authorized users can dial in to the corporate network.

Lee said Pacific Bell's aggressive pricing helped cinch the deal. He, too, has signed up for residential ISDN service from Pacific Bell at a base rate of roughly $25 a month, with free use during off-peak hours.

Come one, come all

Durr said Pacific Bell has been particularly aggressive in rolling out affordable ISDN services.

According to Lee, participants in the program include technical writers and engineers, who seem like ideal candidates because personal interaction isn't the focus of their jobs. But managers are also signing up, he said, especially those who find themselves coming back to the office late at night or on weekends to catch up on work.

As the father of an 18-month-old daughter, Lee said his ISDN-enabled home office has helped him balance the demands of home and career.

Lee said this 440-person program is the beginning of what promises to be a wider rollout among the 7,000 Sun employees in the Mountain View, Calif., area.

Jim Renwick, account manager at Pacific Bell, said he expects the Sun venture to be a model for other companies in the Silicon Valley.

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OVERDUE AMDAHL RAID DEVICE NO LONGER APPARITION, 80
NEW PRODUCTS, 85

A manufacturing trade-off

Client/server software is ripe for the taking, but implementation lags

By Julia King

There is good news and bad news for manufacturing companies looking to migrate to client/server computing.

The good news is that much of the client/server manufacturing software on the market is chock-full of functionality and capable of integrating virtually every aspect of the enterprise — from order processing and product assembly to final distribution and payment.

The bad news is that implementing these various feature-rich applications is a painstaking process that can last from one to two years. For many companies, it also involves re-engineering business processes to conform with the new software rather than the other way around.

Pluses and minuses

A prime example is SAP AG's hot-selling R/3 suite of client/server applications. Users and analysts laud the system for its breadth of features and integration capabilities. One prospective user recalled an SAP salesperson highlighting "between 3,000 and 5,000" parameters that customers can set on the R/3 system.

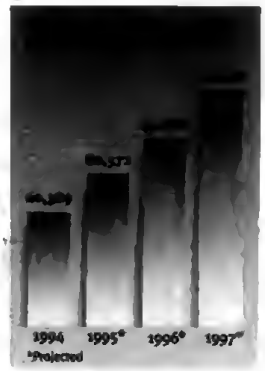
But to take full advantage of the system's integration capabilities, companies should forgo software customization that requires changing source code and instead implement it on an as-is basis.

"The trade-off is [that] customers get very powerful applications, but the drawback is that they are so powerful and complex that it is difficult to make any changes," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass.

On the other hand, "you could argue that what you come out with once you're done implementing is a re-engineered enterprise and a software solution that maps directly against it," said Tony Friscia, president of Advanced Manufacturing Research, Inc. (AMR), a Boston consulting firm.

That is the aim at Jen-Coat, Inc., a $100 million manufacturer of coated paper products that are used in the food and drug industries. The Westfield, Mass.-based company has installed Oracle Corp.'s financial modules and Datalogix International, Inc.'s Gemms manufacturing software, which runs on an Oracle database.

Before installing the Gemms software, "we had no real automated environment. We had a financial environment by itself, and we had places where we kept track of inventories," said Pierre Levesque, director of information systems at Jen-Coat.



Source: Advanced Manufacturing Research, Inc., Boston

With Gemms, "our goal is to re-engineer this place, have users be the masters of their own tools and be a lights-out operation with no computer group," he said.

To accomplish this goal, Jen-Coat's strategy is to implement only off-the-shelf software application packages that can be configured to match the company's business processes without changing the software's source code.

However, other users are willing to tailor their enterprises to today's systems in exchange for the enterprisewide integration and data sharing that client/server software can provide.

Integration is vital

After SAP, top-selling vendors in this market include Oracle and Baan Co. for Unix-based systems and Systems Software Associates, Inc. for AS/400-based software.

As manufacturers see it, integration is the key to reducing inventories, increasing product turnaround times and improving customer service.

Consider the case of Reliance Comm/Tec Corp., a Cleveland-based maker of telephone network equipment. A year ago, the company implemented PowerCerv Corp.'s client/server applications for order management and manufacturing.

Integrating the two functions on the software side has helped the firm reduce cycle time by 25%, cut inventories 6% and increase inventory turns by 10%, according to Larry Parker, who oversees all client/server projects at the company.

Before installing the client/server system, Reliance used a homegrown, mainframe-based materials requirements planning system.

"All transactions were batch, and we could only run it once a week because it took so long," Parker said. Now, incoming orders are passed directly from the client/server-based order-management system to the manufacturing system.

Only the beginning

ICL Retail Systems, a Dallas-based division of Fujitsu ICL Systems, Inc., is beginning to implement Baan's client/server-based Triton software. It should take about 11 months to complete the project. Among other things, the project involves setting several hundred parameters in the Baan software and converting data from proprietary databases to an Oracle database.

"There are cases where we have duplicate data on two or three systems so we always have to verify accuracy, which involves a lot of extra work," said David Adams, director of information technology at ICL.

"Integration will mean we enter data only once, and it flows all the way through the system. It will mean having the ability to know when we can and when we cannot meet customers' requirements," he said.

That is the promise of client/server. But according to AMR's Friscia, "the real benefits from many client/server implementations have yet to be realized." The primary reason is that very few companies have full-blown systems up and running.

For now, he said, "there are very few users who have come through that battle."

A disposition toward Unix

Companies migrating to enterprise client/server software prefer Unix-based systems over software that runs on IBM's AS/400 platform, according to Advanced Manufacturing Research. In 1994, Unix-based systems made up 73% of all enterprise resource planning software licenses. The figure was up from 69% in 1993.

Closer Look: CLIENT/SERVER MANUFACTURING

What to get and what to do

The following are tips on buying and implementing client/server manufacturing applications:

▶ Brace for a bumpy ride.

"You can't go into this thinking that you're going to build a supervehicle without any problems," said Pierre Levesque, director of IS at Jen-Coat in Westfield, Mass.

▶ Closely examine a system's architecture to determine exactly what runs on the server and what runs on the client.

"There are a lot of products that advertise themselves as client/server, but there is very little functionality at the client level other than presentation," according to David Adams, director of information technology at ICL Retail Systems in Dallas.

All told, Adams looked at systems from 44 vendors.

▶ Enlist users to help identify precisely what system functions your company needs.

At Teledyne Specialty Equipment, a Worthington, Ohio-based division of Teledyne Industries, Inc., users from seven manufacturing sites pored over a list of 1,300 questions before the company decided to buy Baan's manufacturing software. The questions were generated with the help of a software package called Buy Smart from Expert Buying Systems, Inc. in Vancouver, Wash.

▶ Constantly communicate to manage both users' and management's expectations.

"People have to understand what they are getting up front. They have to know what is going to be available, and you manage expectations by telling them," Levesque said.

▶ Carefully plan the process of converting data to the client/server system. It is one of the biggest pitfalls, according to Larry Parker, who oversees client/server projects at Reliance Comm/Tec in Cleveland.

"The problem is you've got to write the conversion routines yourself, and they have to be customized for each [legacy] manufacturing system," Parker said.

"A company has the option to do that internally or hire someone to do it for them," he added. Either way, the bottom line is that it takes time.

—Julia King

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Overdue Amdahl RAID device no longer apparition

By Craig Stedman

Fighting to stay relevant in the mainframe storage market, Amdahl Corp. finally introduced its first redundant disk array earlier this month. However, the 726G-byte Spectris array still won't ship until early next year.

Amdahl is the last of the five major mainframe disk vendors to field a RAID device, and it is paying for being slow.

Mainframe storage

The Sunnyvale, Calif., company's share of worldwide System/390 disk shipments has slipped from 10.6% in 1992 to a projected 4.5% this year, according to International Data Corp. (IDC) in Framingham, Mass.

Other factors have also contributed. Amdahl had reliability problems with some of its earlier disks, and its 3390-compatible subsystems still don't support IBM's widely used Escon fiber-optic interconnect. "They've just been a mess for a while" in storage, said Robert Callery, an analyst at IDC.

The lack of RAID has really hurt Amdahl, users and analysts said. Like Hitachi Data Systems Corp., which will ship its first RAID product this fall, Amdahl has been left to sell traditional mainframe disks against the faster and less costly arrays available from IBM, EMC Corp. and Storage Technology Corp.

Array of hope

Capacity:	726G bytes
Data redundancy:	RAID Level 3 with modifications
Nonstop functions:	Hot-pluggable components and microcode
Shipment date:	First quarter next year

"As a [storage] vendor, Amdahl certainly has been at a great disadvantage over the last few years," said Dale Perry, director of technology architectures at Bell Sygma, Inc. in Toronto. "They just haven't had products that are competitive enough with what else is out there."

Amdahl outpaces IBM and HDS as the most prevalent mainframe supplier at Bell Sygma, the information systems and outsourcing subsidiary of Bell Canada, Inc.

However, Perry said only a small percentage of Bell Sygma's 15T-byte mainframe data pool is stored on Amdahl disks.

The Spectris array "will be a step in the right direction" for Amdahl, Perry said. Bell Sygma plans to look at the product as part of future disk evaluations, he said. But the company doesn't expect to be an early customer.

Other users who aren't in Amdahl's mainframe orbit said they were less inclined to give Spectris a shot.

High fiber

Spectris will be able to take full advantage of Escon, IBM's fiber-optic interconnect with 18M byte/sec. transfer rates. Escon support is crucial because more than 70% of current mainframe disk purchases are for use with the fiber-optic technology, according to analysts.

"I like to see more competition to drive the price down to the floor, but how many [vendors] can I get interested in?" said Thomas Loane, vice president of computers and communication services at Alamo Rent A Car, Inc. in Fort Lauderdale, Fla. Alamo already uses IBM and StorageTek arrays and has some interest in the upcoming HDS 7700, Loane said.

Not all there

Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn., said Spectris should be fast if Amdahl's Japanese parent company, Fujitsu, Inc., meets its development goals. But the array lacks some desirable functionality, such as support for 3380 data formats and multiple RAID levels, he added.

Amdahl had planned to ship that kind of functionality this year in a different array that it was buying from Encore Computer Corp. But that deal collapsed in June after Encore complained that Amdahl was dragging its feet on bringing the array to market. Amdahl said the array needed more testing.

Spectris is based on RAID Level 3 technology, which uses a single backup disk instead of the more common RAID Level 5 approach of spreading data redundancy across all drives. RAID Level 3 is typically used in technical computing applications with large data sets. Amdahl emphasized Spectris' ability to handle sequential processing, such as batch jobs and data mining.

The use of a single backup drive, or parity disk in RAID terms, could slow down data updating in heavy-duty transaction applications, Callery said. However, Amdahl said modifications added by Fujitsu on top of the basic RAID implementation should mitigate any write penalties.

Client/server to the rescue

New York upgrades emergency 911 systems

By Thomas Hoffman

A four-alarm fire rages in New York's Spanish Harlem, threatening the lives of hundreds of families in a low-income housing unit.

A Hispanic-speaking resident dials 911 to report the fire, but the 911 operator has trouble understanding the frantic caller and can't determine the location of the blaze. Precious seconds slip by as the fire engulfs the building.

New York officials hope to avoid such incidents when the Big Apple switches to a new emergency 911 system next month. Called the Enhanced 911 system, it is expected to streamline the city's responsiveness to emergencies by equipping its rescue workers with a broad set of information-intensive systems.

The forthcoming client/server-based 911 system should also provide more comprehensive emergency details to police, firefighters and emergency medical workers in New York. The city is the busiest emergency communications center in North America, handling more than 10 million calls last year.

Under the current 20-year-old mainframe/terminal emulation system, 911 operators have to key in the location of an incident and transfer the call to a dispatcher, who then alerts police, fire and emergency medical squads.

"Where we're going to save time with the Enhanced 911 system is right up front," with streamlined feeds into the city's 360 emergency operators, said Michael Amorosa, deputy commissioner of technological development at the New York Police Department.

Thanks to an Integrated Services Digital Network (ISDN)-based telephone system networked into each operator's PC, a phone caller's number and location will appear automatically on an operator's screen. And 911 operators will be able to teleconference the emergency calls with foreign language interpreters. "We won't have to get into confrontations with people whose anxieties are running high," Amorosa said.

24 by 7

Under its $156 million contract with New York, SHL International Public Safety Group is required to ensure that the Enhanced 911 system is operational 99.999% of the time — allowing for only 5.26 minutes of downtime per year.

If there is a fire or an explosion, the computer-aided dispatch system will also automatically search an Oracle Corp. 7.x relational database management system to see whether there is a history of hazardous materials at that location.

By double-clicking a mouse, 911 operators can digitally route emergency information to dispatchers and alert them to the location of the closest units to an emergency scene. In addition, 2,000 New York Police Department squad cars will be equipped with Motorola, Inc. 9100 mobile data terminals to receive emergency information and instructions.

All told, 360 IBM compatible PCs will be linked under the Enhanced 911 system to IBM RS/6000 Model R20 servers through an Ethernet backbone network, said Richard Dale, senior vice president and general manager of SHL International Public Safety Group in New York. The group won the $156 million contract to develop and design the system for the city.

New York 911 operators *will automatically see graphical maps of the emergency area thanks to integrated ISDN telephony*

No trendsetter here

Critics say the Big Apple is merely playing catch-up with its 911 operations because hundreds of other U.S. cities already have computer-aided dispatch systems and mobile data terminals.

Chicago, for example, just flipped the switch on a new $215 million 911 communications center [CW, Aug. 14].

Meanwhile, the Los Angeles Fire Department has been using mobile data terminals for more than 15 years, noted Gary Allen, a dispatcher in Berkeley, Calif., and associate editor of "Dispatch Newsletter," a monthly publication in Venicia, Calif., that covers dispatching issues for public safety communications centers.

"Most of the technology improvements [for 911 systems] have occurred in medium-size cities or smaller cities where the computer systems aren't as complex and don't cost as much," Allen said.

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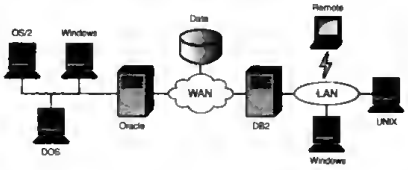

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Altai, Inc. has introduced Zack 3.2 for IBM MVS platforms.

According to the Arlington, Texas, company, Zack 3.2 is compatible with IBM's MVS/XA and MVS/ESA operating systems and is fully integrated with existing versions of Altai's Zeke enterprise scheduling and distributed systems management products.

Zack 3.2 has a distributed management server that allows communication with other Altai applications running on different systems or platforms. This feature lets users receive message traffic relating to remote mainframe systems from a host system.

The product also enables users to monitor activity and initiate actions on different systems. It features multisystem console support, which allows users to look at console messages from different views.

Pricing for Zack 3.2 starts at $45,500 and depends on systems configuration and installation requirements.

▶ *Altai*
(817) 649-1816

Artecon, Inc. has introduced a new Lynx model mass storage product, a 5¼-in. enclosure.

According to the Carlsbad, Calif., company, the 5¼-in. enclosure was designed to house any standard SCSI full-height device, including 9G-byte hard drives, magneto-optical discs and 4mm digital audio tape autoloaders.

The Lynx product line includes interlocking legs for modular stackability, external SCSI and AC jumpers for reducing cable tangles and SCSI bus length. It can be stacked with other Lynx enclosures to create a customized subsystem.

Prices for the 5¼-in. Lynx enclosure start at $595 and vary depending on the device type.

▶ *Artecon*
(619) 431-4400

Platinum Technology, Inc. has introduced SQL Spy 2.0, a Windows-based tool for monitoring heterogeneous databases in distributed computing environments.

According to the Oakbrook Terrace, Ill., company, SQL Spy 2.0 provides database administrators with a real-time, graphical analysis of database activities. It allows database administrators to view local and remote databases from a central console so they can monitor who is logged in to a particular database, what applications are in use and how many database reads and writes are occurring.

SQL Spy 2.0 can be set with more than 70 predefined events that it monitors and resolves, or it sends an alert to the database administrator.

SQL Spy 2.0 gives users the ability to edit scripts larger than 64K bytes, which eliminates the need to break up large scripts into smaller ones for editing purposes, and chain events together as a threshold action. According to Platinum, SQL Spy 2.0 also features multiscript editor windows that allow database administrators to work with multiple scripts in multiple windows simultaneously.

SQL Spy 2.0 requires Microsoft Corp.'s Windows 3.0 or later or Windows NT. It supports Oracle Corp.'s Oracle 6.0 or 7.0 and all versions of Sybase, Inc.'s SQL Server, Microsoft's SQL Server and IBM's DB2 for AIX.

Pricing for SQL Spy 2.0 starts at $995 for a one-user LAN pack. Multiuser packs and site licenses are also available.

▶ *Platinum Technology*
(708) 620-5000

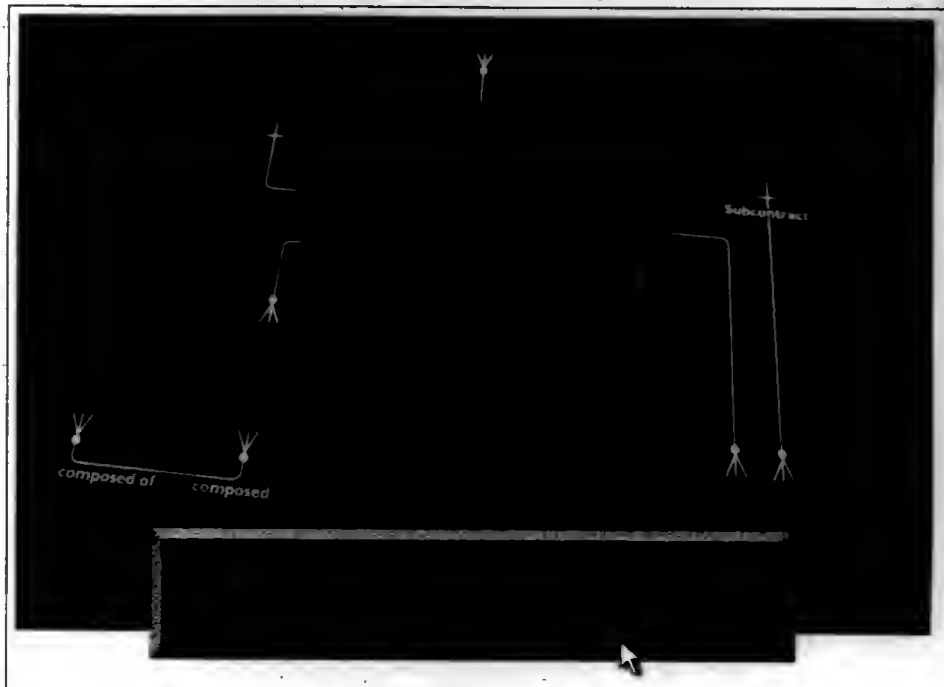
IBM has announced that Inforem, an inventory forecasting product, is now available for its AS/400.

According to the White Plains, N.Y., company, Inforem/400 allows users to determine optimal ordering by factoring in the fluctuating variables of product demand, trends, seasons and service levels. Product cost and order size is automatically recalculated when variables change.

Inforem/400 includes features for dynamic forecasting, weekly seasonal profiles, on-line suggested order review and exception-driven replenishment.

Pricing for Inforem/400 starts at $9,000.

▶ *IBM*
(914) 642-5886



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Application Development

FedEx seeks distributed deliverance

Information access now available beyond its centralized mainframes

By Jean S. Bozman

FedEx Corp. plans to think globally and act locally as it combines its distributed and mainframe systems.

"We need local information to make local decisions," said Kevin Humphries, vice president of systems development at the company's line-haul systems division. Humphries' division runs the company's 240-jet airline and five regional U.S. sorting centers. "But we're a global company, and we need to have a global view," he added.

Object-oriented technology

Distributed object technology will help FedEx go local and global. The package delivery giant plans to move mission-critical information from central mainframes to regional sorting centers across the U.S.

The older mainframe systems will remain in place, since they have the capacity to store huge amounts of transactional data and provide a unified view of corporate data.

But sorting and delivery happen faster if they are done regionally. So the firm's airline and sorting centers will use object-oriented applications to distribute more package information to local sites.

FedEx took its first steps toward regional sorting in the late 1980s. The company used local Unix servers linked to central mainframes through database gateways and TCP/IP networks.

About three years ago, information systems programmers in FedEx's line-haul systems division began building an object-oriented layer of middleware that will link end users' desktops with data stored in mainframes and Unix servers in regional centers. They used SunSoft, Inc.'s WorkShop for C++ tool kit.

But FedEx had to wait for a production release of SunSoft's Distributed Objects Environment (DOE) to ship this fall before it could deploy distributed object applications across its TCP/IP network. It needed DOE's support for Common Object Request Broker Architecture technology and its networked object services.

Meanwhile, the firm started to use object applications on local Sun Microsystems, Inc. servers, using Sybase, Inc. relational database gateways to access mainframe data.

On the launchpad

Next year, FedEx will take the next step and launch distributed objects onto its corporate network, said Steve Kepple, managing director of strategic systems development at the line-haul division.

When the object technology is in place, a package sent from San Francisco to Berkeley, Calif., won't have to be sorted in Memphis, as was once the case for all FedEx packages. It can be sorted and resent in California and tracked locally.

The object-oriented systems will also let end users with Windows-based PCs or Unix workstations find packages, even if the data they are viewing is stored at regional sorting centers. Some applications, already in use in Memphis and Indianapolis, will allow operators to view ongoing cargo flights and see which ones are running behind schedule. IS managers said the distributed applications will be managed by Sun's Solstice object-based network framework.

Prepping for future

The application development goal is to build flexible systems that can change with FedEx's business needs, prompting the use of reusable object-oriented code.

An analyst familiar with the project said FedEx plans to build a layer of C++ software that lets users easily view data stored in mainframes and Unix servers across the network (see chart). It will become, in effect, a front end for the underlying systems.

"By way of this logical view, a customer might be defined in a variety of databases," but users would see one costomer file, said Natasha Krol, vice president of advanced information strategies at Meta Group, Inc. in Stamford, Conn.

The FedEx object project uses roughly 200 Sun workstations and more than 20 Sun Unix servers at five regional sorting centers and in Memphis. Eventually, there will be Sun servers at about 75 airport sites across the country.

Mark Hayward

'First things first' means tool selection can wait

Will the client/server applications that your company is building today become the legacy systems of tomorrow?

As a systems integrator, I've seen too many firms sabotage client/server development projects by designing systems that are just as monolithic, unscalable, inflexible and incapable of satisfying end-user requirements as their mainframe-based predecessors were.

Many efforts fail simply because IS organizations become prematurely wedded to a particular development tool set, which locks them into implementing a rigid client/server architecture that cannot address their company's business needs.

The fact is, no single graphical user interface (GUI) builder or relational database engine will prove optimal for all application requirements. That means choosing development tools and platforms should be one of the last steps in the technology planning process — not the first.

Over and over, I've seen IS organizations jump the gun when it

Tool selection, *page 92*

Visual C++ 4.0 draws raves

By Stuart J. Johnston

Beta testers say Microsoft Corp.'s October update to its Visual C++ programming environment shows its commitment to meeting the needs of serious corporate and professional developers.

Visual C++ 4.0 adds features that will make it easier for development teams to work on large projects, increase productivity and speed up development, said Mike Moskowitz, president of Jetstream Software, Inc. in Kirkland, Wash.

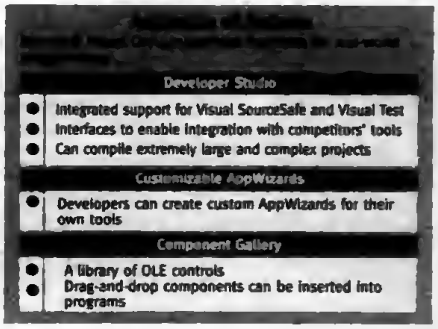
"The really big story is the development environment, which is now called the Developer Studio," Moskowitz said. The Developer Studio will integrate other programming tools with the environment. It now supports the compiling and linking of large, complex projects. Moskowitz said the updated product provides features to help novice and experienced programmers.

Another beta user, Bernard McCoy, also praised the update. McCoy is a software engineer at GE Fanuc Automation NA, Inc. in Charlottesville, Va.

"We have a large development group, and one of the things we didn't like about [earlier versions of Visual C++] was that they didn't cater to more than one programmer," McCoy said.

The Developer Studio will integrate seamlessly with Microsoft's Visual SourceSafe source code control system and Visual Test software testing tool, making it easier for mul-

C++ upgrade, *page 92*



Developer Studio
• Integrated support for Visual SourceSafe and Visual Test
• Interfaces to enable integration with competitors' tools
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Component Gallery
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[redacted]

Fluke Corp. has introduced the NetDAQ Developer's Toolbox.

According to the Everett, Wash., company, the NetDAQ Developer's Toolbox lets users automate or customize NetDAQ Logger for specific applications. It includes functions for Serial Pass-Thru, which allows the custom application to receive ASCII data from an external device, setting digital I/O lines and clearing the totalizer.

The NetDAQ Developer's Toolbox comprises two Windows Dynamic Link Libraries (DLL), which let users create custom Windows application programs to communicate with one or more NetDAQ instruments. It also lets users automate or customize their use of NetDAQ data acquisition units.

The product provides function calls in C, C++ and Microsoft Corp.'s Visual Basic.

The NetDAQ Developer's Toolbox costs $395

▶ *Fluke*
(206) 356-5500

Scientific and Engineering Software, Inc. has rolled out SES/objectbench 2.1, a development tool for Sun Microsystems, Inc. Solaris users.

According to the Austin, Texas, company, SES/objectbench 2.1 is an object-oriented analysis and design modeling tool set. It lets systems developers with Solaris workstations evaluate system-level design decisions thoughout the development cycle and verify performance and functionality.

SES/objectbench 2.1 includes a graphical editor that lets users create and validate models by checking for completeness and accuracy through user-controlled simulation and on-screen animation.

The product is available under Sun platforms running Solaris 2.4. It is also available for Sun SPARC OS and Hewlett-Packard Co.'s HP/9000 Model 700 HP-UX workstations.

SES/objectbench 2.1 is priced by the number of developer seats. Pricing starts at $25,000.

▶ *Scientific and Engineering Software*
(512) 328-5544

Rational Software Corp. has rolled out Rational Rose/C++ 3.0, a graphical software-engineering tool for software systems development.

According to the Santa Clara, Calif., company, Rational Rose/C++ 3.0 provides round-trip engineering to leading object models. The product lets development teams apply an iterative software-engineering process to object-oriented modeling and implementation.

Rational Rose/C++ 3.0 also lets developers identify architectural differences between a design and its implementation, assess the differences and automatically update the design. It has customizable code generation, reverse engineering, model differencing and design update features.

Rational Rose/C++ 3.0 runs on Microsoft Corp.'s Windows, IBM's AIX, Sun Microsystems, Inc.'s Solaris and Sun OS and Hewlett-Packard Co.'s HP-UX.

Pricing for Rational Rose/C++ 3.0 starts at $2,400.

▶ *Rational Software*
(408) 496-3600

Interactive Development Environments has announced a new release of its Software through Pictures (STP) family on Digital Equipment Corp.'s Alpha platform.

According to the San Francisco company, the product line will include Version 2.0 of the company's object-oriented analysis and design tools, STP/OMT and STP/Booch.

It also will include new versions of its structured analysis and design (STP/SE), information modeling (STP/IM) and testing (STP/T) tools.

The company also will link STP to Digital's ObjectBroker to provide users a tool for designing, developing and executing distributed object systems.

Single-user licenses of STP/OMT and STP/Booch cost $12,000. STP/IM and STP/SE each cost $10,000. STP/T costs $8,000. Combination pricing for different editors is available.

▶ *Interactive Development Environments*
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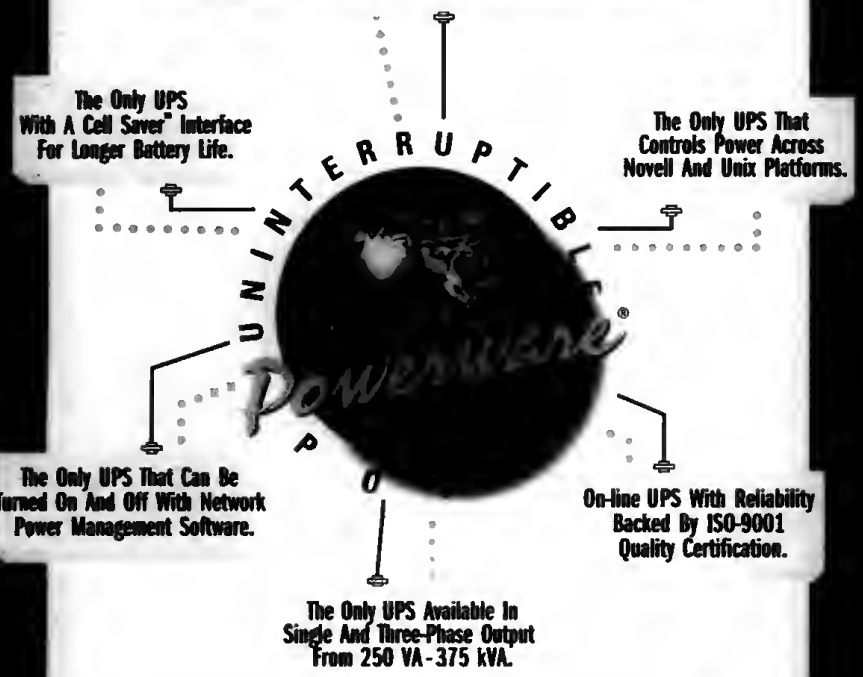

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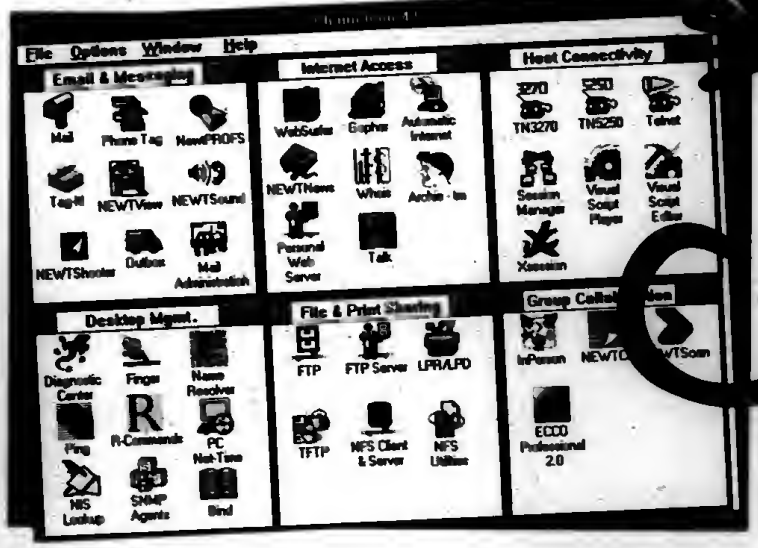

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Tool selection

CONTINUED FROM PAGE 87

comes to tool selection, which is a bit like deciding that a hammer and nails amounts to the ideal tool set for any construction project, whether it be building a simple backyard deck or a hotel.

Hence, to deliver an application that can support large transaction volumes, you might have to foray beyond simple first-generation GUI builders and database servers into the realms of middleware components, mainframe-server gateways, CASE tools, object-oriented programming methodologies and other unfamiliar territory.

While that prospect can be daunting, IS organizations that remain "married" to inappropriate tools — and the resulting inappropriate, inflexible computing architectures — almost always end up throwing extra hardware and code at an application to get it to do what it was intended to do. The results include maintenance costs that rival those of the clunkiest mainframe systems or, worse, a client/server application that never makes it to deployment.

Keep the cart behind the horse

To avoid such pitfalls, I recommend building a methodology around several steps:

- Evaluate your company's goals, policies and information infrastructures to establish technology requirements.
- Determine the computing architecture and infrastructure required to meet those needs.
- Formulate a plan for implementing and migrating information systems to the new architecture.
- In selecting tools and platforms, have a moderated "tool fight," where several experts from the systems integration project team argue the respective merits of their favorite tools.

Such a planning methodology may require a new definition of application development success. Developing three-tier client/server systems with new tools and technologies can take more time and up-front development costs. But the reward will be an application that can be readily deployed and evolve to meet changing business goals.

Against that backdrop, maintaining an open mind about tools is a small price to pay.

Hayward is chief architect at Trecom Business Systems, Inc. in Edison, N.J. He can be reached at mhayward@trecom.com.

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C++ upgrade

CONTINUED FROM PAGE 87

tiple programmers to share and test code without conflicts.

Microsoft also has published the interfaces, which will allow vendors of other development tools to integrate their products with Developer Studio.

Visual C++ 4.0 can compile extremely large and complex projects, instead of handling only portions of a task, said Derek Burney, technology manager at Corel Corp. in Ottawa.

"A real application like Corel Draw is obviously not simple or little, and [until Visual C++ 4.0], you couldn't just push a button and build the whole thing," Burney said.

Beta testers raved about several other Visual C++ 4.0 features, including the ability to create customized Application Wizards. A Wizard is a Windows mini-application that leads the user through a series of questions and then handles a complex task for the user.

Visual C++ already had an Application Wizard, or AppWizard, which helps developers create a skeleton Windows application without writing any code. But Release 4.0 lets third-party and corporate developers customize AppWizards and give the customized Wizards their own programming tools.

Visual C++ 4.0 for PCs costs $499 for new users and will run under Windows NT and Windows 95. Current Visual C++ subscribers will receive a free upgrade.

Visual C++ users who aren't subscribers can subscribe for $299 or can purchase just the 4.0 upgrade for $199. Users of competing products, including any Microsoft database or development tool, can subscribe for $349 or purchase the 4.0 upgrade for $249.

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Management

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- Executive Track, page 101
- Calendar, page 102

Two kaizen rules: Speak with facts and never play the blame game, says Charles J. Knuth, IS director at Holley Automotive

PETER YATES

Think small.

Speak with facts.

Teach co-workers how to disagree.

Sell your ideas to factory workers.

Never think you're done with a project.

Is this any way to run IS?

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Story line

Chrysler, Pitney-Bowes, Holley Automotive and other U.S. firms are adopting kaizen, a Japanese method for improving business processes. And with it, old IS habits go out the window. Here's a quick, personal look at how IS managers and specialists have had to adjust.

By Tony Baer

***If you want your information systems project to succeed, get senior management support.* It's the most often repeated advice in IS, but Rick Rhodes knows it isn't sufficient at his company. *Kaizen* is the reason why.**

Rhodes is a systems development manager at Honda of America Manufacturing. Honda adheres to the Japanese business philosophy of *kaizen*, a way of making continuous improvements. Its use is spreading in the U.S.

At the Marysville, Ohio, company, senior management advises selling the project to "the rest of the world," particularly factory workers, Rhodes says. That's a switch from traditional IS salesmanship, where you interview a few key users or managers, document their requirements and sell your application development plan to one or two senior managers.

"You may know it's the right thing based on your experience, but you've always got to convince a few dissenters," Rhodes says.

IS has not yet seen much of kaizen. Most early U.S. efforts have been on the factory floor. But as more domestic manufacturers and service companies adopt kaizen — which loosely translates as "make better" — more IS managers like Rhodes will have to adjust.

Those experienced in joint application development and total quality management will find many similarities in kaizen's emphasis on cross-departmental teamwork and improving quality. But even they will find kaizen challenging.

Kaizen techniques became famous when Toyota used them to rise to world automotive leadership. Rather than tackle grand projects, Toyota's staff was encouraged to spot problems no matter how small, methodically trace their causes, test and develop solutions and then implement them. After applying the solution, the staff refines it or determines whether it's still needed. With kaizen, the job of improvement is

Kaizen blitz, *page 96*

Kaizen blitz!

CONTINUED FROM PAGE 95

never finished, according to James P. Womackin, whose book *The Machine That Changed the World: The Story of Lean Production* chronicled the development of the famed Toyota system.

Kaizen emphasizes fast, constant, practical improvement. There's less emphasis on defining and measuring quality than in total quality management efforts. The method can also be intense — advocates refer to a kaizen push as a "kaizen blitz," says Patricia Moody, a consultant in Marblehead, Mass. Moody edits *Target*, a magazine published by the Association for Manufacturing Excellence in Wheeling, Ill., that frequently runs kaizen case studies.

Kaizen is spreading in part because many companies are looking for simpler, bottom-up alternatives to top-down business process re-engineering, Moody says. That differs from traditional large-scale IS projects, where developers spent years analyzing the problem, making flowcharts of solutions, delivering grand proposals and grinding out code — only to move on when the project was over.

"A lot of people went into IS thinking they could escape people," says Terry Ribb, a senior manager for client/server change management at Deloitte & Touche. With kaizen, he says, management must work with people in new ways.

Look at how Rhodes won support for a new plant scheduling system.

His team first had to persuade plant floor associates to use the proposed system. With the new scheduling system at least 12 months away, kaizen principles dictated that Honda not wait for future improvements if it could make some today. When one group of associates asked why, they were shown figures demonstrating that a lack of good data caused part of the production line to produce too many parts every day. Kaizen also gave the production people a stake in getting further improvements with the future system.

It was a classic case of speaking with facts. Data, not rhetoric, rank or string-pulling, must make your case. That's one of kaizen's golden rules, according to Charles J. Knuth, an IS director implementing kaizen at Holley Automotive in Warren, Mich., an automotive supplier.

Not assessing blame, Knuth adds, is another.

Are IS people up to the challenge? Knuth is bullish.

"We're already used to working on project teams in many areas of the business. You could say we already have skin in the game."

Breaking down walls

"It changed my job," says John Oetjens, an IS supervisor in the process management department at Chrysler Corp. in Center Line, Mich. Because of kaizen, "I got more involved in the core processes than just taking work orders." Kaizen has also gotten Oetjens involved in some thorny personnel issues.

Oetjens says 80% of his work now involves projects with cross-functional teams. The company shuns the Japanese term and prefers the English phrase "continuous improvement." But the rules his teams follow are kaizen classics: run the meetings with specific ground rules, listen to everybody, look at the process, speak with facts. And above all, eliminate waste.

Kaizen requires more effort than old ways of working, Oetjens says. It's frustrating to get everybody focused on processes rather than preconceived fixes. It's tricky, too, because taking ownership of a process may mean taking ownership of sensitive solutions, such as when a team finds that a process can be done with fewer people. "You have to plan career changes, making sure that those people are properly redirected," he says.

Oetjens is an ex-teacher, and sometimes his old skills come in handy. He recalls a programmer whom he describes as shy but brilliant. When she first got involved with the teams, he says, she rarely said anything, even when asked directly.

It wasn't low self-image, he says, but politeness — she didn't like expressing ideas that implied someone else was wrong. Oetjens tutored her. First, he met with her one-on-one after team meetings to ask her thoughts. Then he asked her to jot down her ideas, no matter how trivial. As she loosened up, he had her join some smaller teams and eventually arrange for her to lead a few. It required patience, but Oetjens says he feels he's made a valuable contribution — getting somebody new to speak up and be a fully functioning member of the team.

Additional resources on kaizen

1. THE MACHINE THAT CHANGED THE WORLD: THE STORY OF LEAN PRODUCTION by James P. Womack, Daniel T. Jones and Daniel Ross (New York: Harper Collins, 1990, 1991). Based on a five-year study of the automotive industry, this book tells the story of the Toyota production system and how kaizen shaped its development.

2. CULTURAL TRANSFORMATION AT NUMMI by Wellford W. Wilms, Alan H. Hardcastle and Deone M. Zell. **Sloan Management Review**, Sept. 22, 1994. A five-year UCLA study of how kaizen transformed NUMMI, a long-troubled General Motors plant, into a world-class facility.

3. TARGET, a bimonthly magazine of the Association for Manufacturing Excellence (AME), 380 W. Palantine Road, Wheeling, Ill., 60090-5863; telephone: (708) 520-3282. *Target*, one of Tom Peters' favorite publications, publishes more kaizen case studies than anyone else. Distributed only to AME members.

4. KAIZEN BLITZ 3: LEARNING BY DOING, a four-day hands-on workshop in Minneapolis Sept. 26-29 on kaizen blitz techniques. It is sponsored by AME. Contact AME at (708) 520-3282.

Are we teaming yet?

LOOKING FOR A WAY TO TAKE THE TEMPERATURE OF YOUR TEAMS? Then consider borrowing a page from Holley Automotive — in particular, how it benchmarks its kaizen teams. Each team is asked to evaluate its progress using a 1-to-5 scale of to answer the following questions:

- **Are goals shared by all team members?**
- **Is participation balanced among team members?**
- **Are team members listening to one another?**
- **Is the team climate interesting?**
- **Is consensus truly shared, not forced by a few?**
- **Are conflicts negotiated to resolution, not suppressed?**
- **Is criticism being directed to the process, not at individuals?**
- **Are team members speaking freely, not being intimidated?**

CHARLES J. KNUTH

With encouragement from Chrysler, its largest customer, Holley has slowly implemented kaizen over the past year. So far, roughly 20% of the 800-person workforce has been trained in kaizen, including half of the company's 10-person IS staff, according to IS director Charles J. Knuth.

Back to the roots

"My first reaction was, 'Wow!' It felt great rolling up my sleeves on the shop floor again after 20 years," says Jim Lord, a manufacturing systems specialist at Pitney-Bowes, Inc. in Stamford, Conn.

Before joining IS, Lord was a manufacturing expediter and a teacher. His background prepared him for working in cross-functional kaizen teams.

Lord's first four days of kaizen "training" included working 12-hour days on the shop floor. He then joined a team to develop a *kanban* system, which uses visual cues for just-in-time work. The project went against his impulse to find technical solutions to problems. He concluded that groups working in close proximity often don't need IS to provide work cues or track production.

Kaizen did reinforce his preference for rapid prototyping and development, he says, adding that it even improved these skills. Rapid application development, like kaizen, thrives on the give-and-take of joint application development sessions and teams.

John O'Connell, program manager for integrated systems at Pitney-Bowes, says kaizen has helped bring Pitney's IS staff out of the ivory tower. "They've grown closer to the real needs of the business." But he notes that some IS staffers are finding it tough to adjust to change. That's one truism that remains with kaizen. ■

Baer is a freelance writer in Newton, Mass.

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OLAP: SLICE, DICE AND HAVE IT ALL MAKE SENSE

DECISION SUPPORT CONSIDER ALL THE OPTIONS

EIS: THE FACTS IN FULL VIEW

CAN YOUR SOFTWARE, AND YOUR COMPANY PASS THE BUSINESS INTELLIGENCE TEST?

MANAGEMENT REPORT

NEWS TRENDS OPINIONS AND IDEAS FOR INFORMATION MANAGERS

HOW TO TAKE THE GUESSWORK OUT OF BUSINESS DECISION MAKING *(WITH A FREE GUIDE TO GIVE YOU AN INTELLIGENT START)*

The key to better decision making is giving knowledge workers access to better information. Business Intelligence (BI) solutions are meant to do just that...in the most timely and efficient way possible.

But all BI solutions aren't created equal. In this issue of MANAGEMENT REPORT, SAS Institute's John McIntyre—Program Manager, Business Intelligence—offers ideas for tapping into your company's information reservoir to fuel fact-based decisions at every level.

"The concept of Business Intelligence offers the best answer for empowering knowledge workers with the information they need to reach the right decisions at the right time," says McIntyre.

What exactly **is** Business Intelligence software? "It's software that allows business users more time to answer questions, by reducing the time they must spend searching for information."

McIntyre adds that "knowledge workers aren't intended to be computer programmers. That's why Business Intelligence software must be **easy to use** as well as **flexible**—to adapt easily to changing information needs within and among departments, and **interoperable**—to make the process of sharing data and applications between computing environments both automatic and transparent."

According to McIntyre, business intelligence software should also be **integrated** to enable knowledge workers to contribute to all levels of business decision making, which include:

DISCOVERY AND QUERY

The power to spot a business trend, opportunity, or problem area by examining the wealth of data residing throughout the whole enterprise.

(continued on next page)

ANALYSIS AND CONFIRMATION

The means to examine *relationships* among trends, variances and market segments to separate reality from perception.

PRESENTATION

The tools to deliver powerful, persuasive reports and graphs that communicate information — in time to take action.

McIntyre adds that "**many technologies converge within Business Intelligence—everything from On-Line Analytical Processing (OLAP) to Enterprise Information Systems (EIS) to Decision Support Systems (DSS).** There's also a need for effective **Query and Reporting** as well as **Data Visualization** tools. None of these technologies alone provides a complete BI solution. But when you bring them all together and add the appropriate interfaces, you have a solution that works for the entire enterprise."

OLAP: SLICE, DICE, AND HAVE IT ALL MAKE SENSE

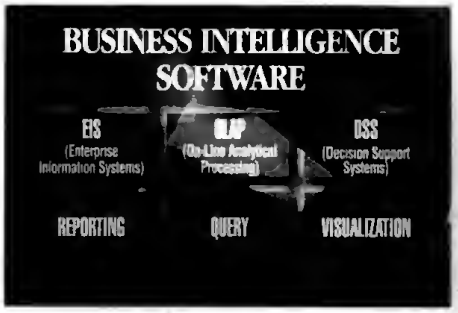
"To spot trends and exceptions in business conditions, knowledge workers need access to all relevant data in a timely fashion," says McIntyre. "On-Line Analytical Processing is ideal for putting decision makers in touch with the data they need. OLAP enables them to slice and dice data quickly, so they can identify trends and exceptions literally on-the-spot."

As an example, McIntyre points to SAS Institute's own software, which combines the power of multidimensional data analysis with the flexibility of intuitive business objects. Business managers can derive views of data, perform slicing and dicing, and serve up data in just the right portions.

"The ability to access and query all kinds of data extends the reach of knowledge workers in discovery mode," explains McIntyre. "While OLAP is popularly associated with tabular representations of data, knowledge workers should have access to other discovery tools such as data visualization and English-language query."

DECISION SUPPORT: CONSIDER ALL THE OPTIONS

"Decision Support Software enables high-level analysis of business data, resulting in a higher level of understanding via forecasts, financial modeling, simulation, visualization, and more," explains McIntyre. "But it's critical to choose software with sufficient breadth and depth."



Because time is at a premium among knowledge workers, McIntyre advises organizations to select an integrated decision support toolset—one designed to be both robust and user friendly.

These tools should also be tailored to work hand-in-hand with other popular personal productivity packages

"Organizations looking for enterprise-wide solutions in such areas as sales management marketing, customer profiling, etc should take advantage of ready-to-run applications spanning these tasks and many others," McIntyre explains "What's more knowledge workers should be able to get to these applications—and begin reaping information from them—through interfaces tailored to individual comfort levels"

EIS: THE FACTS IN FULL VIEW

"Without an effective way to make the results of business analyses accessible to everyone in the enterprise—including upper-level managers—the insights gathered by knowledge workers might simply go unnoticed," asserts McIntyre. "That's why a scalable toolset for building and maintaining an enterprise information system, one complete with the latest reporting and graphical capabilities, is now a business necessity."

Using predefined business objects, middle managers and knowledge workers can build their own customized EISs for individual or departmental use McIntyre adds that "it's important to put tools in front of knowledge workers that empower them, without forcing them first to become computer programmers They should instead be able to select from a library of pre-built objects for multidimensional data visualization, financial analysis drilldown enabled-navigation through data, and more"

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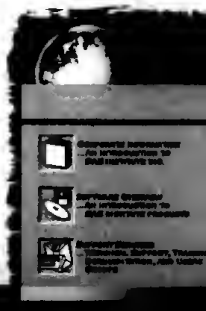

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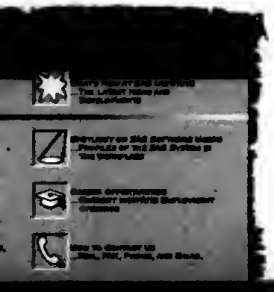

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THE IT PERSPECTIVE
JOHN McINTYRE

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INTELLIGENC

We've been looking at Business Intelli
worker's point-of-view However, there
affecting IT professionals responsible for
support tools

Is the software your business is now u
Intelligence solution one that makes th
makers and those who support them? H
Take a look at the following list, which i
business intelligence software Each state
current business software

1. Breadth and Depth

By empowering your knowledge wor
tools for handling their own information
should enjoy a reciprocal benefit: a redu
ity of maintaining those tools With one s
the gamut of applications across all your
no need to purchase and support all tho

2. A Consistent Interface to Data

It's essential to have direct access to d
than 50 different databases and file form
tant, from an IT perspective, is providing
those data repositories. You can't afford t

FTWARE, OMPANY, USINESS E TEST?

gence from the knowledge
are some higher-level issues
delivering these decision

using a true Business
he job easier for *both* decision
ere's an easy way to-find out
ncludes five key attributes of
ement should apply to your

kers with flexible, easy-to-use
requests, your IT organization
ction in the cost and complex-
oftware solution that supports
hardware platforms, there's
se single-shot solutions

ifferent kinds of data more
ats is ideal. But equally impor-
one consistent path to all
or knowledge workers to

embark on time-consuming searches that lead to frustration and ultimately lead them back to IT for support

3. Client/Server Capabilities

A must! All business intelligence functions should be accomplished cooperatively on all supported platforms in the enterprise from the Data Center to the desktop

John McIntyre
SAS Institute Program Manager for Business Intelligence

4. Interoperability

In selecting a Business Intelligence solution, look for a package that includes support for popular services such as DDE, OLE, and ODBC

5. Portability

The underlying architecture of your Business Intelligence solution should assure portability across new and emerging technologies This is essential to protect your existing investment and to allow you to quickly absorb emerging technologies into your computing mix

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Allan E. Alter

Statistics lie; money talks

Is it just me, or do statisticians really hate IS? It seems that nearly every IS survey has the same message: From programmers to CIOs, IS professionals are better off staying in bed.

Just the other day, I received a call from Bernie Barstumbler, IS consultant and roadside psychic. It turned out he had just finished another IS survey and was anxious for me to publish his findings.

"Is this another negative survey?" I asked.

"Don't be judgmental," Bernie said. "Just listen to these results."

Here's what he told me:

- 168% of all IS projects fail
- 263% of all CIOs lose their jobs three weeks after they are hired.
- 532% of all IS organizations will be outsourced in the next two days.
- 937% of all IS managers are deficient in soft skills (compared with 32% of all death row inmates).
- 1,253% of all IS technicians can't speak plain English.
- 3,762% of end users would rather spend 253 hours a week developing their own applications than let you do it for them.
- 8,435% of all CEOs think they can replace their mainframes with two PCs and a roll of duct tape.

"Is that all?" I asked.

"I also found that only .0000000038743% of all CEOs are happy with their IS departments, and 0000000000000000087254% of IS employees at any level know what type of business they go to work at each day."

Any good news?

"Yes. On average, respondents say Windows 95 will increase productivity by 123,782%."

I told Bernie I was a little suspicious of his methodology, after he told me he had surveyed 2,832,674,414 IS professionals at 634,923 Fortune 500 companies.

"Well, this genuine quote from a real IS executive ought to convince you: 'Sounds right to me. We've been hearing numbers like that for years.' I heard that from Phyllis P. Phyllis."

"Who's she?" I asked.

"Vice president for Ramming Re-engineering Down Everyone's Throat at Humongous Manufacturing Co. in Lookitup, La.

"I also talked to Ronald R. Ronald, director for Making Technical Experts Feel Insignificant at Large Retailer Corp. in Onthemap, Ohio. He says, 'I thought it was even worse.'"

I asked Bernie what he made of these findings.

"First, unlike every professional in every other profession, who are all doing just swell thank you, it's obvious that IS personnel are cursed by vast cosmic forces. In fact, 254% of all astrologers say IS personnel are marked at birth for eternal misery.

"Second, no one loves IS professionals. Well maybe their mothers, but 354% of IS mothers say they're not sure anymore. By the way, 628% wish their IS sons and daughters would call home more often. I tell you, IS people need to work on their soft skills."

"Oh, come on, Bernie," I said.

"And obviously, there isn't a single competent IS professional. In fact, 789% of the entire human population of the earth, 2,982% of porpoises, chimpanzees and other sentient species and 6,293% of all intelligent life in the universe blame their bitter disappointment with information technology on IS."

> If 235% of IS professionals are doing a lousy job, why are they getting bigger raises than anyone else?

"Well, let me run this statistic on you," I said. "According to *Computerworld*'s 1995 salary survey [CW, Sept. 4], IS salaries are increasing at 4.5% annually. That's a higher rate than any other business field, according to the U.S. Bureau of Labor Statistics."

"Well . . ."

"Here's another finding: Despite all the talk about outsourcing, IS turnover in 1994 was 8.7% — lower than the 12% turnover for all professions. Bernie, if IS is doing such a bad job, why are IS professionals getting bigger raises than others and leaving their jobs less often?" I asked.

That made Bernie angry. "Look, pal. If you don't want to publish my findings, fine. There are lots of other people who will." And he hung up.

Bernie may be right about those other people. I've seen some strange numbers over the years. But next time you feel blue about some statistic, ask yourself how other professions would fare under similar statistical scrutiny. Check out the raises folks in other departments are getting. Then go count the IS jobs in the help wanted ads.

For a profession that folks love to criticize, you sure are in demand these days.

Alter is Computerworld's senior editor, Management. He can be reached at allan_alter@cw.com

Executive Track

Paramount Digital Entertainment (PDE) in Hollywood, Calif., has announced the appointment of **Scott G. Converse** as senior vice president of technology. He will be responsible for defining the technology specifications for PDE as they relate to software application development and computer networks. Prior to joining PDE, Converse was vice president of technology at Viacom, Inc. Before that, he spent seven years at Apple Computer, Inc.

Carolina Power & Light Co. in Raleigh, N.C., has announced the appointment of **Cindy Smith** as manager of the information and telecommunications services department. She replaces former Chief Information Officer Tom Dwyer, who has retired. Smith will report to Glenn Harder, executive vice president and chief financial officer. Prior to the appointment, Smith was manager of computer services at Carolina Power.

Florida Power & Light Co. in Juno Beach, Fla., has announced the appointment of **Dennis Klinger** as vice president of information management. He succeeds **William A. O'Brien**, who retired last year. Klinger will be responsible for all Florida Power information management operations and activities, serving the utility's 3.4 million customers. Prior to the appointment, Klinger was vice president and CIO at Ryder System, Inc. in Miami, where he was responsible for the corporation's information systems function.

Delta Dental Plans Association in Chicago has announced the appointment of **Susan Behnke** as vice president and CIO. She will be responsible for strategic and operational leadership for a comprehensive IS development program; managing the national provider file, a database of more than 100,000 dentists in the Delta Dental programs; and tracking and reviewing information and data on topics such as utilization and outcomes.

Prior to the appointment, Behnke was director of IS at Perseco in Oak Brook, Ill. And before that, she was division manager for strategic information services at the Tennessee Valley Authority.

CoreTech Consulting Group, Inc. in Wayne, Pa., has announced that **Donald Shump**, 43, has joined the consultancy as vice president of its newly created management services practice. Prior to joining CoreTech, Shump was vice president of IS at Scott Paper Co. and was responsible for worldwide IS direction. Before that, he held senior IS management positions in application development, technology architecture and support.

VTEL Corp., a leading videoconferencing company in Austin, Texas, has announced that **Max D. Hopper** has been named to its board of directors. Hopper, who retired in January 1995, formerly served as senior vice president of American Airlines' parent company AMR and chairman of The Sabre Group.

His leadership expanded Sabre, a computerized reservation system, from serving just American Airlines' operations to being the world's largest reservation system of its kind.

Beth Israel Hospital in Boston has announced the appointment of **Christopher J. Macmanus** as vice president of IS management. He will manage the integration of Beth Israel's two IS services, its Center for Clinical Computing and the MIS department. Prior to the appointment, Macmanus was vice president of management systems and information services at John Hopkins Hospital and Health System in Baltimore.

Southern Illinois Hospital Services in Carbondale, Ill., has announced the appointment of **Frank A. Sears** as vice president and CIO. Prior to the appointment, Sears held the same position at All Saints Health System in Fort Worth, Texas.

American Management Systems in Fairfax, Va., has announced the appointment of **Robert Marcus** as director of the company's Center for Advanced Technologies Object and Architecture Laboratory. Marcus will provide strategic guidance in incorporating object technology for client projects. Prior to the appointment, Marcus was a senior researcher at Boeing Corp. in that company's Advanced Technology Center. At Boeing, Marcus developed several object technology strategies and many system prototypes.

Calendar

Oct. 1 - Nov. 2

MANAGEMENT

The 1995 Computer Training and Support Conference. Orlando, Fla., **Oct. 2-4** — Sessions include: "Emerging Technologies: Looking in the Crystal Ball"; "The Next Wave: Technologies for the Mobile Professional"; "Virus and Network Security Policies That Work", "Software Licensing"; and "JAD, RAD and Software Development Methodologies." Keynote speakers: David Prentice, president of Learning Corp., on "Super-Charged Customer Service: A Personal Statement of Excellence"; Sue Miller Hurst, director of the Starshine Foundation, on "The Learning Edge"; and Elliot Masie, president of the Masie Center, on "Why Computer Users Say the Strangest Things." Fee: $895. Contact SoftBank Institute, Medford, Mass. (617) 393-3344.

PC Nightmare II. Orlando, Fla., **Oct. 2-5** — Topics include: maintaining standardization, support headaches (installation, training, maintenance and control), assessing cost, asset management, software issues and contracts and effective procurement (partnering, methodology and pricing). Fee: $1,495. Contact: International Computer Negotiations, Winter Park, Fla. (407) 740-0700.

PC Expo. Chicago, **Oct. 3-5** — Topics include: networking, emerging technologies, technology management, Windows, client/server, the Internet and groupware. Contact: Blenheim Group, Public Relations Department, Fort Lee, N.J. (800) 829-3976.

Re-engineering for Managers and Executives: Moving Benefits to the Bottom Line. Cambridge, Mass., **Oct. 12-13** — Topics include: re-engineering overview, managing the process, change readiness, mobilization, visioning, case for action and re-engineering in practice. Contact: Kendall Institute, Inc., Scituate, Mass. (617) 544-3844.

CIO Perspectives. Orlando, Fla., **Oct. 15-18** — Theme: The Psychology of IT: The CIO's New Mind-set. Sessions include "Understanding Personality Differences Among Executives, Using Myers-Briggs to Build Relationships"; "The Last Frontier for Competitive Advantage: Optimizing the Involvement of People in the Business"; "Walking the IT Tightrope: Balancing Life Cycle Costs, Business Needs and Evolving Technologies", and "Re-engineering the CIO Mind-set." Fees: $1,395, information systems practitioners and executives, $1,695, government and military personnel, $5,000, sales, marketing and consulting personnel. Contact: CIO Communications, Inc., Framingham, Mass. (800) 366-0246.

Open Computing & Server Strategies Conference. Hilton Head, S.C., **Oct. 16-18** — Focus: Helping users and vendors struggling to manage evolving technologies. The conference will look at best practices for implementing and managing database, server, middleware and distributed I/O trends, as well as architectural planning, rightsizing, data warehouse infrastructure and transaction processing. Contact: Heather Whiteman, Meta Group, Inc., Stamford, Conn. (203) 973-6715.

SIM Annual Conference: The Right Circle for IT Leadership. Orlando, Fla., **Oct. 22-25** — Speakers include: F. Warren McFarlan, professor of business administration, Harvard University; John Landry, chief technology officer, Lotus Development Corp.; Ingvar Petursson, vice president and chief information officer, McCaw Cellular Communications; Gerald Prothro, vice president and CIO, IBM, and Skip Savoia, vice president, Computer Sciences Corp. Other conference highlights include: CIO Portfolio, a personal and professional assessment workshop for CIOs and senior executives to benchmark their experience and performance. Contact: Society for Information Management, Chicago, Ill. (312) 644-6610.

The 1995 Enterprise Management Summit. Dallas, **Oct. 23-27** — Topics include: asset management, software distribution and configuration management, help desk, managing distributed applications and databases, proactive network management, security and the Internet. Contact: Tim Bostwick, Action Motivation, San Francisco, Calif. (415) 512-1325.

INDUSTRIES

The Association for Manufacturing Excellence (AME) 1995 International Conference. Santa Clara, Calif., **Oct. 3-6** — Craig Barrett, executive vice president and chief operating officer of Intel Corp., will deliver the keynote address on "Agile Corporations and Dancing Elephants." Fees: $695 for AME members; $820 for nonmembers. Contact: AME, Wheeling, Ill. (708) 520-3282.

A/E/C Systems Fall. Chicago, **Oct. 4-5** — Focus is on the effective use of technology by professional designers to help produce the highest quality projects and how design professionals can become part of the electronic loop. Contact: Sharon Price, A/E/C Systems Fall, Newington, Conn. (800) 451-1196.

Graph Expo. Chicago, **Oct. 6-11** — Topics include: CD-ROM, on-line databases and direct digital and decentralized publishing through wide-area business networks. Contact: Graphical Arts Show Co., Reston, Va. (703) 264-7200.

National Associations of Computer Consultant Businesses' Eighth Annual Conference. Palm Springs, Calif., **Oct. 18-22** — Theme: "Continuous Improvement: Making the Changes That Make Things Happen." Keynote address by Sheila Sheinberg, president of the Center for Lifecycle Sciences, on "Focusing on the Change Imperative and the Dynamics." Contact: National Association of Computer Consultant Businesses, Greensboro, N.C. (910) 294-8878.

USER GROUPS

15th Annual Eastern America AT&T/NCR/ADDS Computer User Conference. Bushkill, Pa., **Oct. 18-20** — Focus will be on Microsoft Corp.'s Windows NT, Unix technologies plus general computer and management subjects. Contact: Frank Whalon, Tinius Olsen Testing Machine Co., Willow Grove, Pa. (215) 675-7104, ext. 216.

Autodesk University Conference & Exhibition. San Francisco, **Oct. 20-Nov. 2** — For computer-aided design professionals working with AutoCAD and related products. The program includes in-depth technical courses and workshops and an exhibition of hardware, software, peripherals and add-ons for design and engineering professionals. Contact: Yolanda White, Miller Freeman, Inc., San Francisco, Calif. (415) 905-4994.

TECHNOLOGIES

Software Development and Managing Software Development. Washington, **Oct. 2-6** — Topics include: C++ programming, Microsoft Corp.'s Windows 95 and Windows NT development, leveraging object-oriented technology, building open and distributed systems, database development, client/server architecture and development and user interface design. Fees: $995 for each conference; $1,295 for both. Contact: Software Development Conference & Show Group, San Francisco, Calif. (214) 245-8874.

Human Factors and Ergonomics Society's 39th Annual Meeting. San Diego, **Oct. 9-13** — Conference will feature more than 100 technical sessions on the full range of ergonomics involvement, design, prototyping, test and evaluation, training and maintenance. Contact: Human Factors and Ergonomics Society, Santa Monica, Calif. (310) 394-2410.

Charting a Course for Video On Demand. Chicago, **Oct. 12-13** — Focus: Forecasting requirements and meeting the needs of video-on-demand (VOD) consumers. Seminars will include "Establishing a Market for Video On Demand Services"; "Defining an Architecture that Supports Interconnectivity"; "Exploring the Path of Regulations for VOD and their Impact on the Industry"; "Set-Top Box Technologies — Forecasts for the Future"; and "How to Capitalize on Marketing Strategies for VOD." Fees: $1,195 per person, $1,095 per person with three to four attendees from one firm; $950 per person with five or more attendees. Contact: ICM Conferences, Inc., Chicago, Ill. (312) 540-3083.

POWER '95: The Third International Conference on Power Requirements for Mobile Computing and Wireless Communications. Santa Clara, Calif., **Oct. 16-18** — Keynote speakers: John K. Medica, vice president of portable products at Dell Computer Corp.; Shane V. Robison, vice president and general manager of the personal interactive electronics division of Apple Computer, Inc.; Dennis F. Strigl, president and chief executive officer of Bell Atlantic Mobile Systems; and Jim Valerio, director of mobile labs at Intel Corp. Contact: BIS Strategic Decisions, Inc., Norwell, Mass. (617) 982-9500.

The Mobile Outlook Exposition and Conference. Atlanta, **Oct. 17-19** — Topics include: mobile communications practices and potentials, field sales and service and wireless applications. Contact: Sandi Eberhard, Eberhard & Co., New York, N.Y. (212) 486-6186.

Systems Support Expo. San Francisco, **Oct. 26-27** — Focus is on support solutions and professional services for network support, help desk and hardware maintenance professionals. Contact: Systems Support Expo, Yarmouth, Maine (207) 846-0600.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

SEND ANNOUNCEMENTS TO

David Weldon, Associate Editor/Management, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701. Fax: (508) 875-6932.

MEDICAL ALERT...
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After Hurricane Andrew, The President sent in the troops.

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The customer's old headquarters lay in ruins. Their new building was still under construction. And the roads were jammed with everything from refugees to roofers' trucks.

That was the situation facing PeopleSoft's Peter Nasca and his software implementation team when they landed in Florida on a stormy August morning, just days after Hurricane Andrew. Our customer, ProSource, was spinning off from its parent company, and needed to be up and running with PeopleSoft by December 31. Come hell or high water.

Despite the rubble, despite spotty electric service, despite traffic-choked highways, Peter and his team successfully implemented the software. He even flew back to Miami on Christmas Day to ensure the system would be up and running, smoothly and on time. The result: another satisfied customer for PeopleSoft.

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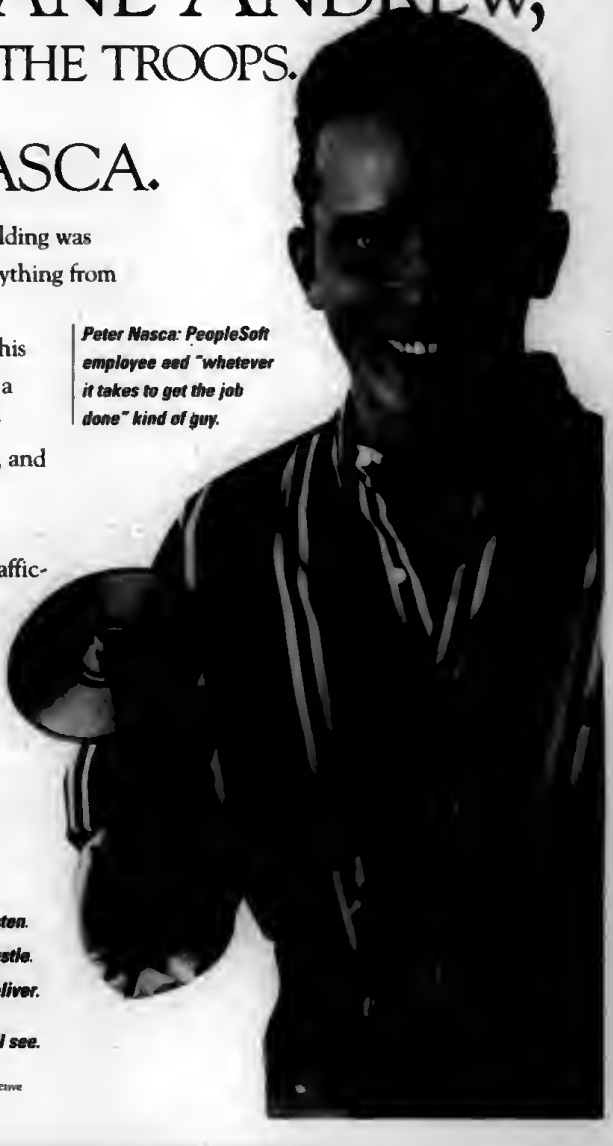

Peter Nasca: PeopleSoft employee and "whatever it takes to get the job done" kind of guy.

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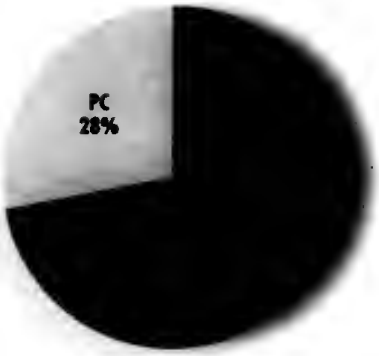
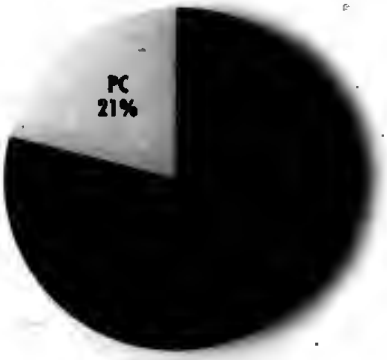
HOW DO WE KEEP CO



July 10, 1995
Editorial Profile



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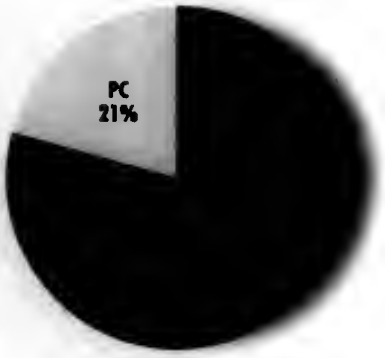

August 7, 1995
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August 14, 1995
Editorial Profile

EVERY WEEK WE

The world of Information Systems doesn't stand still. And neither does *Computerworld*.

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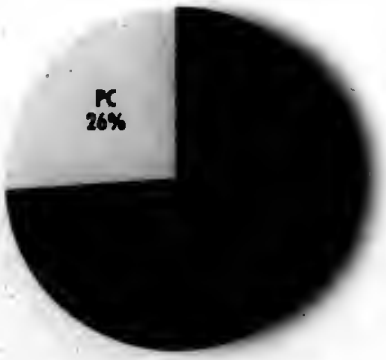
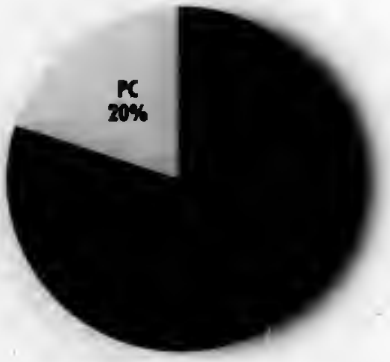
MPUTERWORLD FRESH?

July 24, 1995
Editorial Profile



July 31, 1995
Editorial Profile

August 21, 1995
Editorial Profile



August 28, 1995
Editorial Profile

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The Newspaper of IS

In Depth

THE Virtual INTERNET FORUM

Welcome to In Depth's second virtual Internet experts' forum. We've brought together Internet 'digerati' — Internet-savvy authors — to discuss hot Internet issues such as searching, cyberloitering and electronic business.

Users have been complaining that it's hard to find anything on the 'net — it takes too long or they don't get what they're looking for. What does the future hold for Internet searching and directories?

•••

While indexing approaches such as Yahoo and Lycos make it somewhat easier to find what you want, they use centralized methods to index a rapidly changing decentralized environment, which will probably make it harder for them to scale as the Internet grows.

There are other efforts to provide some intelligence to information discovery and retrieval; an example of a personalized smart agent system is WebHound (http://webhound.www.media.mit.edu/projects/webhound/), which bases its searches on your interests (which you specify by evaluating existing World Wide Web servers). Employing a type of information filtering technique, it then notifies you (periodically or on demand) of recommended resources and lets you update your preferences, which WebHound uses to improve its searching strategies.

Another important research effort to pay attention to is Harvest. Harvest is actually an integrated set of tools that addresses gathering, extracting and organizing information, in addition to searching. It takes advantage of the distributed nature of the Internet, allowing it to scale, while conserving network, server and disk resources. Harvest does this by leaving the compiling and indexing up to individuals and communities who have a good idea of what information they want. See the Harvest Web server, http://harvest.cs.colorado.edu/harvest, for more information.

There are many free and commercial information searching and retrieval development efforts. Check Yahoo: http://www.yahoo.com/Computers/Internet/World_Wide_Web/Searching_the_Web/ for more information.

For information on directory services standards developments, check out the latest from the Internet Engineering Task Force Applications Area. http://www.ietf.cnri.reston.va.us.

— Tracy LaQuey Parker

Retrieval and navigation services providers are recognizing that there is a need for better organization — externally imposed organization to promote navigation from one resource to a similar one. Many of these providers are addressing this by turning to librarians or to library techniques (refer to the July 24, 1995 comp.infosystems.www.misc on the

subject. Yahoo is hiring cataloguers!) There are lots of experiments and projects going on, and it's clear that something will break soon.

At the same time that tools are getting smarter, information providers are getting craftier. I've read about information providers that load their servers with lots of popular search words that are not related to the server's content. The words are selected so that the server will appear frequently in the results of Internet users' searches. One server had several hundred unrelated terms to fuel the index of a network robot. This very shady practice is referred to as index-spamming.

The important lesson? Navigation and retrieval are difficult. If you want to surf, get a browser. If you want to use the network, consider using a professional.

—Nancy R. John

Something to make searching easier? Being a bit snotty, the answer is no. But it is not a technical problem — it is a problem with the users. They want to say, "Here is the question" and have the answer come back "42." It will not be that way for a long time. There are good 'net indexes out there (Lycos at http://lycos.cs.cmu.edu/ or Yahoo at http://www.yahoo.com). And given about five minutes, you can find just about anything in them. Many people just don't want to invest the five minutes unless they are assured of success.

Restricting the information space you search will be the answer in the future. For example, a company interested in the world's scientific Internet sites might buy a subscription from Van Nostrand Rheinhold of those sites. It is then up to the user to do the surfing. The only downside is that this approach restricts what you will find to the same resources that are published in books.

I think the real answer is librarians. Think of libraries. Most people can't find anything in a library either; they wander aimlessly through the stacks and then ask a librarian for help. This will work on the 'net, too.

—Ed Krol

No question, the Internet's dirty little secret is that nothing's indexed. Someone once likened it to a gigantic library where the books are dumped on the floor.

—John R. Levine

The key concept missing from almost all of the search directories available today is quality. The mindless obsession of most directory sites, including Yahoo, WebCrawler and more, is quantity. Who has the most links? Who can point to the most sites that might — or might not — be directly related to the topic you seek?

—Dave Taylor

The chaotic nature of the 'net is its strength: it grows continuously, from everywhere, like a biological organism, instead of being centrally redesigned and laboriously remodeled at long intervals.

Picking the wheat from the chaff is an editorial function. There will be more value, not less, in editing, filtering and searching.

—Howard Rheingold

Cyberloitering is a burning issue these days — employees wasting time on-line when they're supposed to be working. Do you think companies should take action such as blocking messages and tracking on-line usage?

●●●

Sure, it's all too easy to get caught up in nonproductive time zooming around Usenet and the Web. On the other hand, this is probably the closest thing to Internet training your company's likely to provide — and also probably the only tool your people will voluntarily learn more about.

My recommendation: Encourage people to get individual accounts, so they can play with the Internet on their own time. It wouldn't hurt to issue a "don't overdo play time on the 'net except during lunch" memo, if phrased tactfully.

As for blocking messages and tracking usage ... barf. While you're at it, why not tap the phone lines and read everybody's faxes? If you don't trust your people, they don't belong there. But do create policies regarding posting to mailing lists and Usenet and make sure everybody reads and signs a copy.

—Daniel P. Dern

Companies should treat the Internet the same way they treat the phone and other business resources. Create a clear policy that lets staff know what is expected and how resources should be used.

—Mary J. Cronin

Cyberloitering? Cyberpolice? Yuk. Granted, employees need to be mindful of company resources (just like they limit personal phone calls), but compa-

Virtual Internet Forum, *page 108*

What's the COOLEST SITE that business users should know about?

http://www.intercom.net/user/rbdrudge/main.html
A virtual reference desk that pulls together lots of useful, practical sources and information tools.
—Mary J. Cronin

●

http://www.tig.com
Mike Bauer's The Internet Group site
—Daniel P. Dern

●

http://town.hall.org/edgar/edgar.html
Security and Exchange Commission's EDGAR file.
—Nancy R. John

●

http://www.cdnow.com
CDnow's site that shows the added value the 'net can give to people. CDnow is a music store, but the site isn't merely a catalog. It is a searchable catalog by artist, album title, song title ... If you hear a neat song, you can ask it what album it's on and what other songs are on that album. Far more useful than the yellow loose-leaf catalogs in record stores ever were.
—Ed Krol

●

http://www.comdex.com/
The Comdex Web site. This page generates something like a million dollars a week in new registrations. So much for claims that you can't make money on the 'net.
—John R. Levine

●

http://www.newspage.com
Newspage's site offers a customized newsfeed from more than 500 information sources on topics ranging from the high-tech industry to health, banking, real estate and finance. This server offers a free two-week subscription.
http://www.unitedmedia.com/comics/dilbert
Dilbert's Web server for (fun) insight into managerial problems and employee complaints.
—Tracy LaQuey Parker

●

http://www.popco.com/hyper/inet-marketing
Inet marketing site is a good place to discuss all aspects of on-line marketing and advertising.
—Dave Taylor

●

ILLUSTRATIONS BY TIMOTHY COSS

THE Virtual INTERNET FORUM

CONTINUED FROM PAGE 107

nies need to present clear, written guidelines, and good managers need to apply such policies fairly. Just because technology allows for closer watching doesn't mean firms should use those means on the assumption that all employees are abusing network access.

—Nancy R. John

This is not a new network problem; it is a personnel problem: Dealing with a problem employee.

The problem will get worse as more of the 'net becomes integrated with jobs. If a purchasing agent's job is to surf the 'net and look for cheap widget distributors, which is probably close to what will happen in five years, you can't just take away surfing privileges. Managers will still need to manage — even in cyberspace.

—Ed Krol

Oh, no! Employees goofing off! Man the barricades!

If a company is so badly run that it has to resort to monitoring and blocking 'net access to get its employees to do their jobs, it's got worse problems than 'net access. Sure, every company needs guidelines about network usage and behavior on the 'net. But if cyberloitering gets in the way of work, that suggests that either employees don't understand what their jobs are or don't take them seriously — problems that doubtless existed before on-line access made it more evident.

—John Levine

In an article in the *Harvard Business Review*, author Sara Kiesler discovered that "time-wasting" informal E-mail lists can be places where experts make acquaintances across geographic and organizational barriers — acquaintances who may later help solve work-related problems. Of course, in an oppressive atmosphere, where management is out of tune with people who work on the line, people will find ways to waste time. Time wasting is a symptom of poor management.

—Howard Rheingold

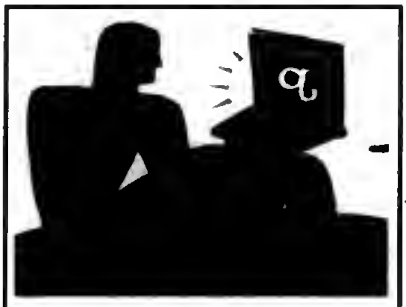
What is your hottest idea for setting up electronic commerce on the 'net?

•••

What I would pay for in a minute would be a fully functional personal information organizer, software that would integrate and regularly search all the best Web sites for my areas of interest, grabbing info from newsgroups, E-mail pubs, on-line newspapers and other sources and letting me know what is worth reading right now, tomorrow, weekly and so on.

I don't have trouble finding valuable resources on the Internet — I find too many of them to keep track of and get back to!

—Mary J. Cronin



Bonus questions

What's one of the greatest MISCONCEPTIONS about the Internet?

That it's currently a lucrative place to do business. There are unquestionably some companies that are doing well with their on-line business, but almost all of those are appealing to the current demographics of the Internet (for example, upscale computer owners). If you're selling RAM chips or software, the 'net can be a great venue. If you're selling cars or real estate, I sincerely hope you're viewing your on-line venture as an extension of your other advertising efforts that may or may not offer a good return on investment.

—Dave Taylor

•

What has IMPROVED on the Web in the past six months?

There's been a tremendous upgrading of the look and functionality of home pages. The good news is that companies can much more easily have a really professional-looking Web site. The bad news is that if you don't make a real effort to keep fresh, a home page will go out of date ever more quickly.

—Mary J. Cronin

■

I'm not convinced that "electronic commerce" is a high-priority concern for most users at this point. I sure have no trouble buying stuff without going through the 'net, but there are lots of 'net-related problems I do need solved. Perhaps it's the folks who get pieces of the action who are driving this.

—Daniel P. Dern

Advertising — the kind when a business adopts a cool Internet tool or service and keeps it free and available. That's great publicity. The other kind is truly interactive services — ones where I get to play or do something (a puzzle or a game, not filling out a form), even if the real purpose is to get my address to send me junk E-mail and flyers. (Not cool.)

—Nancy R. John

I think the hot spot in electronic commerce will be home delivery of custom-designed products. We are already starting to see it with things like pizza. Click on the pepperoni, click on mushroom and enter your address, and it's delivered. That's just the beginning.

—Ed Krol

Well, gee, if I had such a hot idea I certainly wouldn't go blabbing about it, would I?

It's pretty clear to me that, at this point, 98% of the commerce on the 'net is stuff that could equally well have happened in other media. (I order books over the 'net, for instance, because it's slightly easier than waiting on hold for an 800 number.) The interesting developments are going to be in retail sale of information, that is, selling small amounts of info for small amounts of money. This currently is hard to do because there's no way to collect small amounts of money on the 'net, but there's lots of projects under way looking at digital cash and micropayments to make that possible.

The possibilities are enormous — everything from on-line movie schedules and reviews to stock market info, medical info, you name it. In most cases you'd only charge a few cents per page returned. But with the number of users on the 'net, those few cents can add up quickly to some real money.

—John R. Levine

There's a growing need for providing authoritative and edited information. One of the most successful services I pay attention to is EduPage, produced by Educom, which provides a regular summary (three times a week) of high-tech news. This service is free, but it's so useful that many people would pay to get it. You can read EduPage via the Web (http://www.educom.edu/web/edupage.html) or subscribe via E-mail by sending a message to listproc@educom.edu and in the body of the message type: subscribe edupage <your name>.

For a nice overview of on-line commerce, resources and recent developments on the Internet, check out http://www.netsurf.com/nsf.

—Tracy LaQuey Parker

I believe that industry-specific business-to-business sites are the next big wave in Internet commerce, and that companies with a product line most appropriate for other businesses should be teaming up with compatible partner vendors (for example, an office furniture company, a business stationery firm, a computer leasing firm, a commercial realtor, a law firm) and building one-stop spots on the Internet where fledgling companies — and existing firms seeking to expand — can meet all their needs without having to travel too far. Each firm advertises the shared spot on the 'net (with URLs [uniform resource locators] in print ads, for example), and each profits from the success of the others.

—Dave Taylor

Our expert panel

Daniel P. Dern is an Internet analyst, writer, pundit and godfly. He is author of *The Internet Guide for New Users* (McGraw-Hill, 1994) and is working on *The Internet Business Handbook* (Prentice-Hall). He can be reached at dpern@world.std.com.

Mary J. Cronin is author of *Doing More Business on the Internet* (Van Nostrand Reinhold, 1995). She is professor of management in the Department of Operations and Strategic Management at Boston College. She can be reached at cronin@bcvms.bc.edu.

Ed Krol is author of *The Whole Internet Users Guide* (O'Reilly & Associates, 1994) and is working on *The Whole Internet for Windows 95*, due out in November. He is assistant director of computing and communications at the University of Illinois, Urbana. He can be reached at e-krol@uiuc.edu.

Howard Rheingold is author of *The Virtual Community: Homesteading on the Electronic Frontier* (Harper Perennial, 1994). He can be reached at hlr@well.com or http://www.well.com/user/hlr.

Tracy LaQuey Parker is author of *The Internet Companion: A Beginner's Guide to Global Networking* (Addison Wesley, 1994). She is education market development manager at Cisco Systems, Inc. and can be reached at tparker@cisco.com.

Dave Taylor is author of *Creating Cool Web Pages with HTML* (IDG Books, 1995) and co-author of *The Internet Business Guide* (Sams Publishing, 1995). He is head of Intuitive Systems, a Web and software interface design firm, and can be reached at taylor@intuitive.com.

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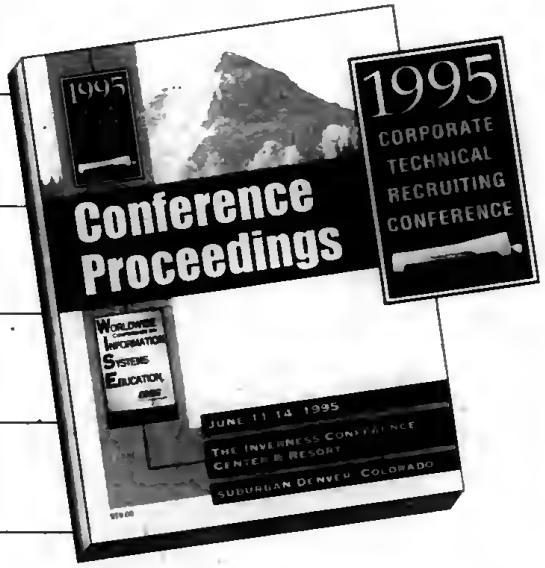

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TRAINING FEVER

Plenty of work and better-than-average salary increases make a career in IS training worth exploring

By Leslie Goff

As information systems departments hustle to bring their staffs up to speed in client/server environments, IS training careers have taken on a premium.

Career opportunities in technical instruction look solid overall, but savvy technical trainers who have worked as IS professionals can earn as much as $10,000 to $20,000 more in annual salary than end-user application trainers.

From coast to coast, companies such as Pacific Gas & Electric Co. (PG&E) in San Francisco and Liberty Mutual Group in Portsmouth, N.H., are looking to "reskill the re-engineered organization," says Alexis de-Planque, an analyst in the advanced information management service at Meta Group, Inc. in Stamford, Conn. Training demands at these companies exist in most areas, but people who are qualified to reskill mainframe programmers and teach client/server and object-oriented application development are in particular demand, dePlanque says.

Rising trend

In fact, a quick review of IS staff programs at PG&E and Liberty Mutual underscores the breadth of opportunity. PG&E's IS staff will undertake systems integration, Unix, network theory, client/server architecture and design and applications prototyping methodologies, to name a few. In addition, Cobol programmers are taking introductory courses in client/server concepts, says Margo Eachus, a training supervisor in the computer and telecommunications services arm of PG&E.

At Liberty Mutual, client/server architectures and object-oriented application development dominate the staff's current course load, says Norm Lord, manager of IS performance support, the company's technical training department.

As corporate America buffs up its training initiatives, the trend hasn't been lost on training firms. Many of the major end-user application training vendors are launching IS training programs.

"Most users are already on their second or third spreadsheets, so there just isn't the same entry-level applications training demand there used to be," says Sam Warfel, national technical education manager at AT&T Corp.'s Professional Development Center in Denver. "Where problems arise is in the connected world, where all these applications have to share information over the WAN. That's where the real training needs are."

Moreover, as ExecuTrain Corp. in Atlanta continues to hire trainers for its core business — end-user applications training — "the real demand is in the technical field," says Cindy Neal, vice president of training at ExecuTrain. The company is hiring technical trainers to teach classes in client/server concepts, Novell, Inc.'s NetWare, Notes development, Microsoft Corp.'s Access development and Windows NT and Powersoft Corp.'s PowerBuilder.

"Quality is a huge issue to us, so we look for people with very strong presentation skills," Neal says.

In fact, certified trainers are the jewels in the crown to training vendors, says Audrey Rutledge, senior corporate trainer at Productivity Point International, Inc. in Hinsdale, Ill. "They're hard to find, and they make a lot," she says. "It's by far the hottest market right now."

Where the call for top trainers will continue to come from is anyone's guess. For example, training focused on reskilling for client/server is expected to remain hot for the next two to three years, says Eugene Raphelian, an analyst at Gartner Group, Inc. in San Jose, Calif. After that, the supply of qualified instructors should be more on par with demand. But for now, "if you have interpersonal skills and a client/server migration on your resume, you can write your own ticket," he says.

In the larger urban markets, an IS trainer considered an expert in object-oriented programming development can earn as much as $70,000 to $80,000 annually, compared with salaries of $30,000 to $50,000 for end-user applications trainers, Raphelian says.

Opportunity knocks

If full-time corporate work isn't for you, opportunities abound for contract trainers, according to a survey of members of the Information Technology Training Association in Austin, Texas. Of the 66 companies surveyed, 97% report using contract trainers. Of that percentage, 20.3% use contractors half of the time or more.

But what makes a good technical trainer? Direct IS experience with the tool or technology is the top criteria, followed by interpersonal skills and previous teaching experience. At Liberty Mutual, trainers who lack teaching skills but have the right combination of technical skills and experience are sometimes paired with teaching mentors.

"There's a degree of credibility you must have when teaching new skills to IS people," Lord says. "The instructor has to not only be able to deliver the objectives of the course, but also be able to answer all the IS staffers' questions. If there's someone in the room who knows more than the instructor, the teacher won't have that degree of credibility."

And if you're a perfectionist, forget it. Neal says you'll lack the flexibility that must exist in a classroom full of adult learners. Good instructors are "facilitators who can get people involved in their own education," she says.

At this point, you may have doubts about whether becoming an IS trainer is a solid career move, but according to Lord, the dangers are few. He worked for eight years in IS research and development at Liberty Mutual before he transferred to its training department.

Despite lingering concerns that he would lose his "handle on new technologies," he made the move. "I thought it was a good, healthy move for my personal growth," he says.

A few months later, he realized his fears about the transition and falling behind technologically were unfounded. "We are always having to project out future training needs, [therefore,] our own training is on the cutting edge." ■

Goff is a freelance writer in New York.

AVERAGE SALARY INCREASE

IS professionals	IS trainers
4.5%	7.9%

For 1994

AT A GLANCE

	Average annual base salaries for full-time IS technical trainers	Turnover rates	Contract positions
CERTIFIED LOTUS INSTRUCTOR	$45,315	20%	$695 a day
CERTIFIED MICROSOFT TRAINER	$46,264	9%	$862 a day
CERTIFIED NOVELL INSTRUCTOR	$45,110	18%	$562 a day

Sources for all charts: 1995 Computerworld Survey, Information Technology Training Association, Austin, Texas. Numbers are based on national averages across four regions: Northeastern, Central, Southern and Western U.S. Computerworld's 1995 Salary Survey.

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Regional Scope

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IS Texas Style

Opportunities are larger than life in the Lone Star State — especially in Austin and Dallas

BY WILLIAM SPAIN

IF EVERYTHING IS BIG in Texas, then information systems job opportunities are no exception. From the Silicon Hills of Austin to the communications centers of Dallas to Houston's big oil, companies are crying out for help.

Of course, demand for IS professionals is intense in the other 49 states as well, and high technology is nothing new to Texas. However, old-line giants such as Texas Instruments, Inc. have been joined in recent years by newer ones such as Dell Computer Corp., Claris Corp. and Compaq Computer Corp. Smaller software firms are popping up in all the major areas, and the Texas economy, long dependent on energy and agriculture, is rapidly diversifying.

This growth is largely centered in Austin, Dallas and Houston and their surrounding environs. While Texas' other big metro area — San Antonio — hasn't been left entirely behind, IS recruiters agree that there aren't as many opportunities there as in the other cities.

What follows are thumbnail sketches of the aforementioned Texas boom towns. All three share some of the same needs for skilled IS workers, but each has its own particularly hot segment. Austin is a major software and Internet provider; Dallas is home to information-driven behemoths such as American Airlines, Electronic Data Systems Corp. and AT&T Corp.; and energy is still king in Houston.

BEST PLACES TO WORK

The following Texas-based companies made *Computerworld's* list of the 100 Best Places To Work based on IS growth, benefits, training and diversity

- **Baylor University**, Waco, Texas
- **Long Star Gas Co.**, Dallas
- **Trinity Industries, Inc.**, Dallas

Source: Computerworld's Best Places to Work survey, June 1995

Austin

Jim Talbot has a few simple words of advice for skilled IS people seeking work in this trendy hill-country city, the state capital and home to the University of Texas: "Just make your presence known."

Talbot, senior managing editor and chief technology officer at The Reference Press, a business publishing company, says Austin's recent high-tech surge has resulted in a severe shortage of qualified people, making it difficult for employers to meet personnel needs.

People who know their way around the World Wide Web are in particularly short supply, he says. "Anything related to the Internet is just white hot. Everyone with even the slightest HTML programming skills is in demand right now," Talbot says.

This category includes "the tech weenies who create the guts of a Web site — those with Unix skills and graphic designers who create the look and feel of a site," he says. He notes that there are many people "who can design book covers or brochures but a lot fewer who can design an icon."

Sterling Information Group, a software management consulting and custom development firm, is typical of the boom. The company added 25 to a staff of 40 in less than a year.

"Austin is a hot market. All the [economic] sectors are healthy. We certainly see a big demand for systems administrators, analysts and programmers," says Alison Raffalovich, marketing director at Sterling. "There is a lot of competition for skilled professionals, but since Austin is known for a high quality of life, it is also fairly easy to attract" them.

Dallas *makes use of older and newer skills*

Dallas

Actually located in nearby Plano, with 10,000 or so of its 85,000-plus worldwide employees based there, EDS is among the biggest in the Dallas area when it comes to information technology.

And according to EDS campus relations manager Chris Ryan, there is "substantial opportunity" for would-be Texans at his company and other area firms. Systems engineers, programmer/analysts, minicomputer/PC programmers

Texas style, *page 119*

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Texas style

CONTINUED FROM PAGE 118

and software programmer/analysts are all in high demand.

Dallas is a very strong market "from the perspective of the person looking for opportunity," Ryan says. "One of the things we hear and see often is [a need for people with] Unix backgrounds as well as Cobol, database, Ingres, Sybase and Oracle. It really runs the gamut."

"From about 1989, emerging technology has really taken off in the Dallas area," says David R. Cutler, president of Eagles International, Inc., a nationwide consulting practice. "The executive management of most companies headquartered in Dallas have a very good understanding of what information systems can do now and what they will do in the future," leading to an ongoing demand.

"The meat of the job market in Dallas today is object-oriented programmers," Cutler adds. "We are transitioning from legacy systems to object technology systems."

Another big need is for people who can handle automated workflow management and image processing, he says.

While Cathy Peterson is looking for the latest and greatest in Unix and Powersoft Corp.'s PowerBuilder, where there are "hundreds of openings and no indication it is going to let up," the regional recruiting manger for Computer Task Group, a nationwide consulting firm, "would give anything" for more people versed in Cobol/CICS and Cobol/DB2.

The reason? "For every company that has a client/server [system] installed, there is an old mainframe that needs to be maintained," she says. "Who says Cobol is dead? The person who stays in that field is going to make a lot of money."

Many Houston firms *target software toward oil and gas companies*

TOP RELOCATION SPOTS

Houston climbs to first place as the most popular city in the U.S. for corporate and government relocations

1. Houston	6. Philadelphia
2. Chicago	7. New York
3. Atlanta	8. San Francisco
4. Dallas	9. Denver
5. Washington	10. Los Angeles

Source: PHH Relocation Corp., Wilton, Conn.; based on 35,000 to 40,000 annual client relocations

Houston

A few years ago, buffeted by oil price drops and a quality of life second to all, Houston was in real danger of sinking back into the swamps on which it is built.

However, according to Violet O'Brien, vice president of Whitaker Information Technology Services Group, a consulting and recruitment firm, the city "has certainly rebounded. From an IS standpoint, the economy in Houston is great," she says.

Driving that need is the old mainstay energy industry, she says: "Tons of software is being marketed to the oil and gas companies. Exploration and production are busy trying to maximize their abilities to decide where to drill." As a result, companies need the right tools to help make those decisions. "They are [also] trying to develop systems to comply with government regulations" on safety and the environment, she adds.

Growth has occurred outside the energy industry as well, says Bob Shields, whose company, Robert Shields & Associates, recruits IS workers and provides contract services. For him, "client/server remains near the top of the list. Oracle [database administrators] are hard to find. . . . AS/400 is an OK market."

Shields says that even as a giant high-tech employer such as NASA's Johnson Space Center cuts back, "the economy has diversified enough to provide employment in a lot of different industries. There are a lot of new small to midsize industries, [and] we are even developing a decent little software industry here in Houston." ■

Spain is a freelance writer in Boston.

TEXAS: AT A GLANCE

Unemployment

Austin	3.4%
Dallas	5.0%
Houston	6.0%
San Antonio	5.0%

Major employers*

Austin
- City of Austin
- Motorola, Inc.
- University of Texas
- Austin Independent School District
- IBM

Dallas
- AMR Corp.
- Texas Instruments, Inc.
- Dallas Independent School District
- Electronic Data Systems Corp.
- City of Dallas

Houston
- Brown & Root, Inc.
- Kroger Co.
- Continental Airlines
- Randall's Food Markets, Inc.
- McDonald's Corp.

San Antonio
- Kelly Air Force Base
- Fort Sam Houston
- Lackland Air Force Base
- United Services Automobile Assoc.
- City of San Antonio

*By number of employees

Source: Greater Austin Chamber of Commerce, Greater Dallas Chamber of Commerce, Greater Houston Partnership, Greater San Antonio Chamber of Commerce

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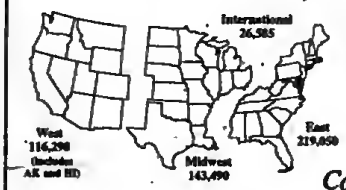

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CA-Datacom/DB	data management/DBMS	5,332
CA-IDMS	data management/DBMS	66,520
DB2	data management/DBMS	165,383
dBase	data management/DBMS	257,769
DL/1	data management/DBMS	71,912
Ethernet	LAN**	248,973
FoxPro	data management/DBMS	142,757
Gupta/SQLBASE	data management/DBMS	26,507
Ideal	data management/DBMS	2,526
IMS	data management/DBMS	109,619
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Ingres	data management/DBMS	29,313
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Model 204	data management/DBMS	8,114
NETVIEW	communications	98,758
Object Database	data management/DBMS	6,430
Objectview	development/CASE† tool	21,985
Oracle	data management/DBMS	134,106
Paradox	data management/DBMS	176,340
PowerBuilder	development/CASE† tool	86,026
R:BASE	data management/DBMS	67,362
RDB	data management/DBMS	16,453
SAS	lang/GUI*/U&W	107,993
SQL	language/GUI*/utility	177,484
Superbase	data management/DBMS	8,395
Supra	data management/DBMS	8,114
Sybase	data management/DBMS	51,659
System 1032	data management/DBMS	1,123
Total	data management/DBMS	23,163
Uniface	data management/DBMS	1,964
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VAX DBMS	data management/DBMS	39,732
Visual Basic	development/CASE† tool	197,697
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* Graphical User Interface ** Local Area Network † Computer-Aided Software Engineering

SOURCE: Skills Survey of Computerworld's Audience, August 1994.

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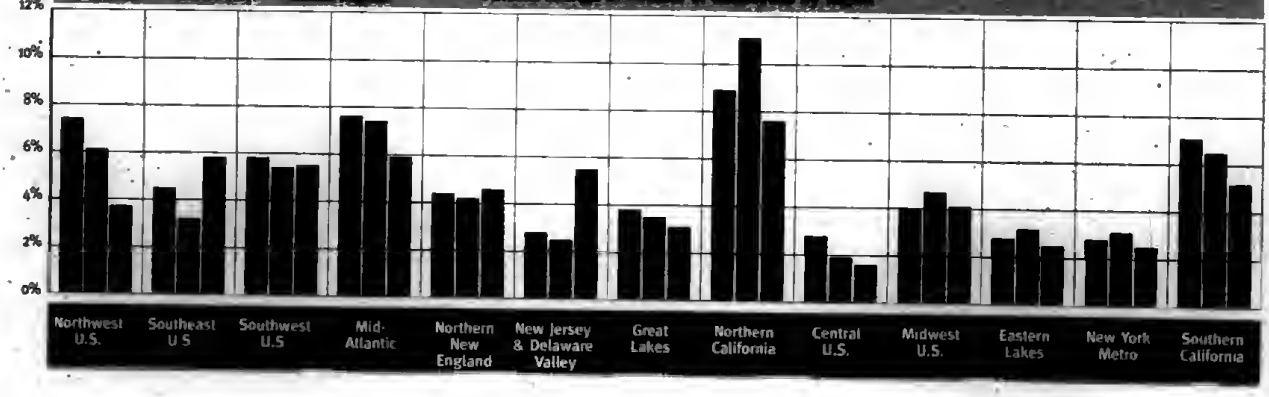
COMPUTERWORLD

Computerworld/CompTech Career Index

National: June [illegible] July [illegible] August [illegible]

[illegible] June [illegible] July [illegible] August

Percent change in number of employees by region



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Monday, October 30, 1995
Boston Marriott Newton, Newton, Massachusetts

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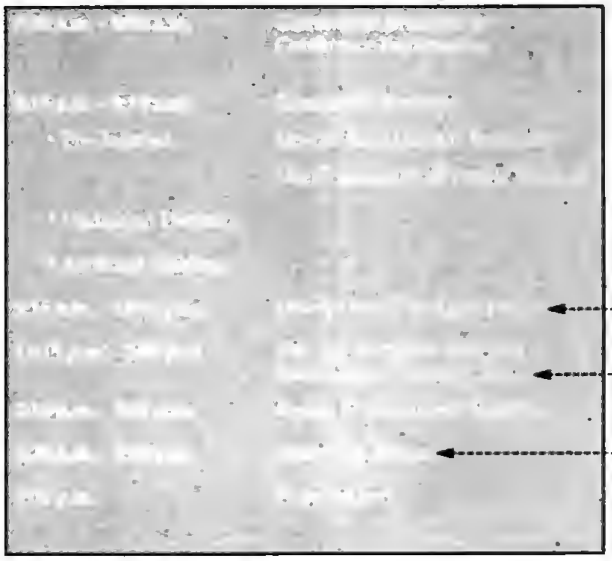

How To Pick The Right People
9:15 a.m. - 12:10 p.m.
Dr. William Swan
Learn the latest in how to pick the right people from Dr. William Swan, a nationally recognized expert in interviewing and performance appraisal. Dr. Swan conducts interview selection seminars and workshops for major corporations and government agencies and has personally trained over 25,000 managers to conduct more effective interviews.

The Top 10 Trends Affecting Information Systems Careers
12:15-2:00 p.m.
Luncheon/Keynote Address
Paul Gillin, Executive Editor, Computerworld
Sure, there are new skills entering the market every day, but what are the top 10 trends you should really keep an eye on? Paul Gillin, one of the country's leading watchers of the Information Systems profession will give you an up-to-the-minute view in this very special keynote address.

Town Hall Forum
3:20 p.m. - 5:00 p.m.
moderated by
Jack Erdlen, Strategic Outsourcing
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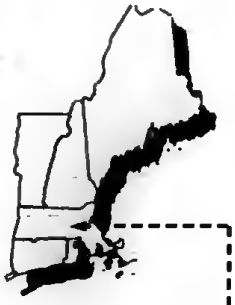
* Registration fee includes continental breakfast, lunch and the complete Conference Resource Guide



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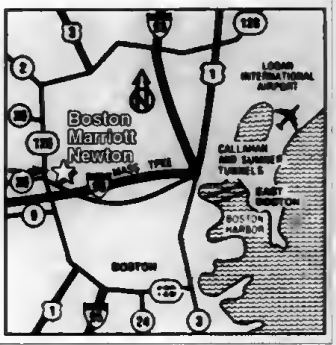

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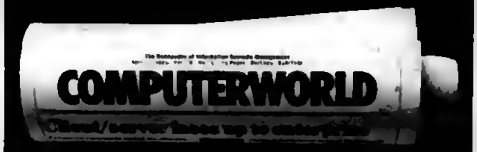

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CONFERENCE WATCH
Sept. 25 - Sept. 29

Interop

By Daniel Lyons

Computer trade shows are part carnival, part religious revival and part educational experience. But if you sift through the wacky booth demonstrations and T-shirt giveaways, you can get a handle on the zeitgeist of the industry.

At Networld/Interop '95, which will be held next week in Atlanta, hot topics will include wireless networking, fiber optics and Asynchronous Transfer Mode (ATM). Attendees had the following to say about their plans for the show:

ANDREW LUNK
Instructor
Microhard Technologies, Inc.
Chicago

"I'm going for three days. I'm taking a two-day course on TCP/IP implementation, which is a follow-up to a course I took at [the last] Networld/Interop. You just can't get this kind of training anywhere else. Things that would take you months to learn on your own you can learn in two days. I'm also planning to attend some of the evening sessions, and I'll go through the show floor. For the most part, I already know about the products, but it still gives me a chance to talk to the engineers from Novell, Inc. or Lotus Development Corp. about their products, which is neat."

MARTIN SWANY
Systems programmer, network software engineering
University of Tennessee
Knoxville

"I'm taking a tutorial in high-speed networking that will help us when we begin evaluating ATM. The course will be seven hours a day for two days. It's very intense. I'll also do the show floor. I'm interested in fiber-optic products. The floor is a mix. In some ways it's drudgery, and it's so overwhelming. Some booths are just a dog and pony show, but others are more serious. I got some good, solid answers last year from a Sun [Microsystems, Inc.] product manager."

DAVID SHIELDS
Senior project manager, IS department
Sears, Roebuck and Co.
Hoffman Estates, Ill.

"I'm taking two two-day courses. One is an overview of wireless networking. The other is SNA and TCP/IP internetworking. Then I'll spend one day on the show floor. We're about to make a $5 million decision about a wireless backbone connecting 800 Sears stores, so I'm going to interop to learn about the technology. As for the show floor, I'll visit the IBM booth, the Cisco [Systems, Inc.] booth and probably Emulex [Corp.]"

EDDIE HURT
Systems integrator
U.S. Air Force Academy
Colorado Springs

"I'm going to take a two-day ATM workshop. Part of my job is to evaluate new technologies and fit them into our long-range plans. ATM, for us, is three to five years out. I'll also attend the short sessions and presentations and try to gather what's going on in the industry. I'm looking for workflow technologies this year. We'll probably also look at switching technology on hubs. We're thinking about moving some of our locations to switching technology this year. The booth demos are just canned demos, but it gives you a chance to see all the vendors in one room."

FRED NESSLAGE
Data communications technician
Missouri Western State College
St. Joseph, Mo.

"I'm going mainly to see what kinds of products are available. I'm interested in Ethernet hubs. We're in the first phase of deploying an Ethernet network to the desktop. In two weeks, we're going to start putting in fiber to get more buildings on-line. We've been using standard high-density stackable hubs from David Systems, Inc., but I'm going to see what else is available and whether I can get anything cheaper."

TOM CUOMO
Network manager
Cologne Life Reinsurance Co.
Stamford, Conn.

"I'm taking a two-day tutorial on wireless LANs. We're looking three to five years out into the future, and wireless is one of the technologies we're focusing on. Besides the tutorial, I'll go to some sessions and presentations and probably visit the show floor. Usually, I like to visit the vendors that we do business with and ask them what new things they've got coming."

BILL ALLEN
Sales manager
AT&T Corp.
Charlotte, N.C.

"I am taking a two-day tutorial on TCP/IP. Then I'm going to spend a day taking one-hour and two-hour workshops. Last year, I paid $795 for an internetworking class, and it was very disappointing. There were 500 people in the room. I'm hoping the group will be smaller this year."

LOUIS CUREAU
Senior information technology specialist
Entergy, Inc.
New Orleans

"The main reason I go is for the tutorials. The people who teach them are well-known in their fields. I am taking a two-day tutorial on wireless networking, a two-day tutorial called 'Hot Topics in Networking' and a one-day workshop on ATM. I may break away for a few hours one day and walk the show floor. And often when you're browsing the show floor, you can pick up on new products that you weren't aware of. [Entergy] is planning to move from a router network into an ATM-based switched network starting in 1996, so we are looking for anything that has to do with that." ■

Lyons is a freelance writer in Ann Arbor, Mich.

What to do for fun in Atlanta

Hey — you're out of the office for a week, and your expenses are covered. So what's there to do in Atlanta?

Chops, a steakhouse, "will let you smoke cigars inside, and they have amazing steaks," says Andrew Lunk, instructor at Microhard Technologies.

Red Brick Ale, a local brew, is available on tap. "I was deprived last time I went to Atlanta," says Martin Swany, a systems programmer at the University of Tennessee. "I only had it in the bottle."

The Marriott Marquis hotel lobby "is the most breathtaking hotel interior I've ever been in," says David Shields, senior project manager at Sears, Roebuck and Co.

Not everyone has fun, however. Eddie Hurt, a civilian who works as a systems integrator at the U.S. Air Force Academy, says that for him, fun is forbidden. "I'm a government employee," he says. "They don't pay me to have fun. I work my butt off down there. I'm spending your tax dollars wisely."

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RFP Phase 1 document is available September 11, 1995. A Vendor Information meeting will be held on September 22 1995. RFP Phase 1 proposals (10 copies) are due by October 13, 1995 by 4.30 PM. To obtain a copy of the RFP, FAX your request on company letterhead to (718) 488-6465. Attention: Bid Reception Desk. All vendor inquiries must be directed to Ruth Pasquale, Assistant Chief Procurement Officer, 130 Livingston Plaza, 6th Floor, Brooklyn, NY 11201 (718) 694-4327

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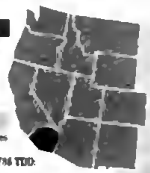

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Gainers

Percent

Exabyte Computer Corp.	48.8
Writer	41.3
Bytes	32.2
Micron International Inc. (H)	24.8
Advanced Logic Research (H)	21.6
Phoenix Technologies	17.4
Proteon Inc. (H)	16.2
Imacon Corp.	16.0

Dollar

McAfee Associates (H)	7.00
Cabletron Systems (H)	5.75
Micron International Inc. (H)	4.75
Tektronix Inc.	4.50
Autodesk Inc.	4.13
Compton Corp.	3.63
Octel Communications Corp. (H)	3.63
Xylogics Inc. (H)	3.50

Losers

Percent

Reno Inc. (L)	-66.7
Cypress Semiconductor Corp.	-19.1
Apple Computer Inc.	-10.4
Western Digital Corp.	-15.8
Quantum Corp.	-14.3
Oracle Corp. (H)	-14.0
Rastleops	-11.8
AST Research Inc.	-10.7

Dollar

Cypress Semiconductor Corp.	-9.13
Apple Computer Inc.	-8.75
IBM	-6.88
Oracle Corp. (H)	-6.13
Progress Software Corp. (H)	-4.88
Quantum Corp.	-3.63
Silicon Graphics	-3.50

Disk drive stocks dive

An announcement from Western Digital Corp. (WDC) last week sent a shudder through the stock prices of competing disk drive manufacturers.

After the Irvine, Calif.-based company announced lower-than-expected earnings for its latest quarter due to pricing pressures and shipping delays, competitors — including **Quantum Corp. (QNTM), Seagate Technology, Inc. (SEG), Syquest Technology, Inc. (SYQT)** and **Iomega Corp. (IOMG)** — saw their stock prices drop. Market analysts still foresee plenty of strength in this segment, although the stiff competition in pricing may leave some companies shaking for a while.

Jean Orr, an analyst at A. G. Edwards in St. Louis, said the disk drive market is "very competitive, perhaps too competitive" in its zeal to undercut competitors' prices. She said strong demand and managed inventories should have benefited companies in the market but that fierce competition has kept profit margins low.

Although Iomega saw its stock price drop, its future looks bright, according to Scott Butler, an analyst at "Red Chip Review," a newsletter in Portland, Ore. The Roy, Utah-based disk drive maker has introduced two "revolutionary" removable storage products in the past eight months, Butler said, for which "demand has wildly exceeded expectations."

Although the competition is heated, Butler said, all of the "market fundamentals look as good now as at any time recently." He added that most disk drive companies involved are bullish on the market.

—Stewart Deck

Slipped disks

Several disk drive companies' stocks fell following Western Digital's earnings announcement

	Sept. 8	Sept. 14
Western Digital	20 5/8	17 3/8
Seagate Technology	47 1/2	45
Quantum	25 3/4	22 3/8
Iomega	26 3/8	25 1/8
Syquest Technology	17 3/8	16 3/16
Maxtor	5 1/8	5 5/16
Conner Peripherals	13 7/8	15 1/2

Exch	52-Week Range		Sep. 15 Stock	Wk. Net Chng	Wk. Pct Chng
			Computer Hardware		
OTC	44.00	18.13	3 COM Corp. (H)	43.63	3.13 2.7
NYS	52.00	38.00	AMERITECH Corp	52.00	1.50 3.0
NYS	59.00	47.75	AT&T	58.25	3.25 5.9
OTC	74.75	10.38	Ascend Communications	69.88	1.63 2.1
OTC	19.75	10.00	Banyan Systems Inc	10.75	1.00 8.5
OTC	52.63	23.13	Bay Networks Inc. (H)	51.88	2.50 5.1
NYS	61.00	48.38	Bell Atlantic Corp	61.00	2.13 3.6
NYS	72.88	50.50	BellSouth Corp (H)	72.00	3.12 4.3
NYS	39.38	12.63	Bell, Berkner & Newman	35.50	2.11 5.6
OTC	23.25	9.00	Geometricus Technology	20.00	0.25 1.3
NYS	67.00	37.38	Cabletron Systems (H)	62.00	5.75 10.2
OTC	22.25	12.25	Centigram Communications.	17.50	-0.50 2.8
OTC	50.50	20.00	Chipcom Corp	45.75	3.63 8.6
OTC	72.38	23.63	Cisco Systems Inc. (H)	69.94	-0.44 -0.6
OTC	11.50	6.13	Compression Labs Inc	8.38	0.13 1.5
OTC	12.75	5.63	Computer Network Tech	6.25	-0.38 -4.3
OTC	14.50	7.50	CrossComm	11.00	1.38 11.0
OTC	4.50	2.13	Data Switch Corp	4.31	0.00 2.5
OTC	62.50	26.88	DSC Communications (H)	57.75	0.25 0.4
OTC	47.00	18.25	FORE Systems Inc	32.50	-0.25 -0.8
NYS	35.88	9.25	General Datacomm Inds.	12.75	0.12 1.0
NYS	37.88	29.50	GTE Corp (H)	37.88	0.75 3.0
NYS	126.50	77.00	ITT Corp (H)	126.50	2.75 2.2
OTC	25.88	17.25	MCI Communications Corp	25.88	1.75 7.2
OTC	15.75	5.50	MICOM Communications Corp	11.00	1.00 8.3
OTC	22.25	8.83	Microcom Inc	10.75	-0.50 2.5
OTC	18.50	4.38	Netrix Corp	5.44	0.19 3.6
OTC	12.00	3.25	Network Computing Devices	6.75	-0.63 8.5
NYS	39.75	12.50	Network Equipment Tech	37.00	1.88 4.8
OTC	43.38	17.13	Network General (H)	42.38	2.63 6.6
NYS	43.38	27.00	Newbridge Networks Corp	29.38	-0.63 2.1
NYS	61.00	31.25	Northern Telecom Ltd.	36.63	-0.75 -0.7
OTC	23.25	16.13	Novell Inc	18.00	1.06 -5.9
OTC	47.00	35.63	Nynex Corp (H)	47.00	1.13 2.5
OTC	42.25	12.75	Octel Communications Corp (H)	41.13	3.63 0.7
OTC	41.50	8.50	Optical Data Systems Inc (H)	38.00	2.25 -5.6
OTC	8.38	2.13	Proteon Data Comm Networks (H)	7.50	-0.63 7.7
OTC	42.00	15.38	Pictureltel Corp	33.50	-3.63 -6.3
OTC	10.75	3.75	Proteon Inc. (H)	9.88	1.38 16.2
OTC	7.88	3.00	Racotek Inc.	6.88	-0.25 -3.5
OTC	6.25	3.50	Retix	6.88	1.19 32.2
NYS	24.00	17.50	Scientific Atlanta Inc	19.38	-1.00 -4.9
NYS	54.25	39.25	Southwestern Bell Corp (H)	54.25	2.88 5.6
NYS	39.88	25.00	Sprint Corp	36.00	1.00 2.9
OTC	31.63	12.50	Standard Microsystems Corp	16.00	1.00 -5.9
OTC	57.50	17.38	Stratacom Inc.	50.50	0.25 0.5
OTC	8.13	3.63	Telesit Corp	4.50	0.38 9.1
OTC	80.88	15.38	US Robotics	76.00	0.75 1.0
NYS	67.00	29.63	US West Inc. (H)	67.00	2.00 4.4
OTC	23.50	9.13	Xircom	11.50	1.63 13.7
OTC	53.25	30.88	Xylogics Inc. (H)	53.13	3.50 7.1
			Computer Software		
OTC	3.63	3.63	Advanced Logic Research (H)	8.50	1.50 21.6
OTC	50.13	37.50	Apple Computer Inc	38.50	-8.75 -18.4
OTC	19.13	10.38	AST Research Inc.	11.50	1.38 30.7
NYS	56.75	30.75	Compaq Computer Corp	49.50	-0.88 -1.7
OTC	37.25	33.63	Dell Computer Corp (H)	82.75	1.13 1.3
OTC	32.75	15.25	Gateway 2000 Inc (H)	29.38	-2.38 -7.5
NYS	85.88	41.25	Hewlett Packard Co (H)	81.50	2.25 2.7
OTC	24.13	2.75	Micron International Inc. (H)	23.88	6.75 24.8
NYS	45.63	23.38	Silicon Graphics	38.13	-3.50 -8.4
OTC	67.00	26.88	Sun Microsystems Inc.	56.12	2.25 3.9
NYS	64.38	40.88	Tandy Corp (H)	63.62	0.63 1.0
			Computer Services		
ASE	13.63	8.00	Arbitron Corp	10.13	0.25 2.5
NYS	8.88	3.63	Cooper Computer	5.00	0.13 2.6
NYS	74.38	14.63	Cray Research Inc.	23.50	0.25 1.2
NYS	12.00	6.75	Data General Corp	10.50	1.00 10.5
NYS	40.50	24.38	Digital Equipment Corp	40.25	-3.00 -6.9
OTC	5.56	1.06	Encore Computer Corp	2.19	0.69 63.8
OTC	38.50	9.25	Harris Computer Systems Corp.	15.00	0.50 3.4
NYS	114.63	67.38	IBM	92.38	-6.88 -6.9
OTC	10.50	3.00	Meridian Data Inc (H)	8.75	0.75 8.3
OTC	12.25	6.25	Netframe	6.63	-0.50 -7.0
OTC	25.38	14.23	Sequent Computer Sys.	23.00	1.25 -5.2
OTC	50.00	3.13	Sequoia Systems Inc.	7.50	0.38 5.3
NYS	30.88	23.00	Stratus Computer Inc.	27.25	2.00 -6.8
NYS	19.25	11.75	Tandem Computers Inc.	12.50	-0.75 -5.7
OTC	7.63	3.38	TalCond Systems	5.00	0.38 -10.1
NYS	13.63	7.25	Unisys Corp (L)	8.13	0.25 3.2
			Software		
OTC	66.50	27.25	Adobe Systems Inc.	46.25	1.25 2.5
OTC	8.62	2.50	American Software Inc. (H)	8.00	-0.38 -4.5
OTC	33.00	9.75	Aplus Inc	36.00	-2.75 -9.6
OTC	53.00	38.75	Autodesk Inc.	49.75	4.13 9.0
OTC	7.88	2.00	Bachman Info. System	6.12	-0.25 3.9
OTC	35.00	22.00	BGS Systems Inc. (H)	35.00	1.00 7.9
OTC	48.75	22.50	BMC Software Inc. (H)	47.25	3.00 6.8
OTC	31.25	19.23	Boole & Babbage	30.50	0.75 2.5
OTC	17.25	6.00	Borland Int'l Inc. (H)	15.25	1.38 -8.3
OTC	11.25	5.75	Brock Control Systems Inc	7.75	0.25 3.3
OTC	3.75	1.78	CE Software	2.06	-0.06 -3.9
ASE	12.75	8.75	Cheyenne Software Inc. (H)	10.50	-0.38 -2.8
OTC	35.38	11.75	Cognos Inc. (H)	13.50	-1.00 -7.9
NYS	55.75	26.63	Computer Associates	61.50	-3.00 -4.5
NYS	14.38	2.50	Computervision Corp.	12.00	-1.00 -7.7
OTC	48.25	27.50	Computware Corp.	33.75	0.25 1.1
OTC	32.38	10.75	Consware Inc.	29.75	0.25 0.8
OTC	19.50	10.13	Corel Corp	18.38	-0.44 -2.6
OTC	18.25	9.00	Database Technologies Inc.	23.13	-0.23 -2.8
OTC	51.00	25.50	Fulbert Corp. (H)	46.50	-2.38 -4.9
OTC	8.75	3.38	4th Dimension	6.13	-0.63 9.3
OTC	33.00	13.50	Frame Technology	25.00	-0.50 -2.0
OTC	35.50	19.00	FTP Software Inc	25.38	0.63 2.5
OTC	26.00	6.00	Group I Software	22.25	0.60 3.0
OTC	13.00	8.25	Gupta	8.50	0.00 0.0
OTC	12.00	4.63	Hogan Systems Inc.	9.88	0.00 0.0
OTC	53.75	31.25	Hyperion Software Corp	52.25	2.25 4.5
OTC	18.63	11.23	Information Resources	13.50	0.88 6.9
OTC	23.50	10.50	Informix Corp (H)	20.12	1.38 -6.4
OTC	14.38	7.38	Intergraph Corp	12.38	-0.38 -2.9
OTC	11.00	2.88	Interleaf Inc.	10.38	-0.25 2.4
OTC	26.25	11.00	Intersolv Inc.	20.38	2.38 10.4
OTC	46.50	13.38	Intuit Inc.	46.50	2.31 5.2
OTC	48.25	23.00	Legent Corp	47.13	0.25 0.5
OTC	11.50	3.63	Magic Software Enterprises	8.63	0.13 1.5
OTC	38.50	6.75	Manugistics Group Inc.	16.13	1.38 9.3

Exch	52-Week Range		Sep. 15 Stock	Wk. Net Chng	Wk. Pct Chng
OTC	40.00	16.50	Marland Corp	23.75	0.25 1.1
OTC	7.38	2.00	MathSoft	6.38	0.25 4.2
OTC	54.50	8.00	McAfee Associates (H)	54.50	7.00 14.7
OTC	21.88	0.75	Mentor Graphics (H)	29.88	-0.50 2.4
OTC	15.00	50.75	Micro Focus	13.50	0.00 0.0
OTC	13.88	5.00	Microgram Inc. (H)	12.50	0.75 6.4
OTC	100.75	53.88	Microsoft Corp	94.00	-0.61 -0.7
OTC	26.13	9.00	NetManage Inc. (H)	21.25	-1.00 -4.1
OTC	74.75	45.75	Netscape Comm Corp	62.25	2.25 4.0
OTC	46.88	26.75	Oracle Corp (H)	27.63	-6.13 -14.0
OTC	63.75	25.75	Parametric Technology (H)	60.13	1.38 -2.2
OTC	23.25	7.88	Parcplace Systems Inc	12.25	1.00 8.9
OTC	81.50	21.88	People Soft (H)	74.81	-1.19 1.6
OTC	13.50	5.38	Phoenix Technologies	12.50	2.00 17.4
OTC	16.88	8.50	Platinum Software	11.00	0.00 0.0
OTC	36.00	13.50	Platinum Technology	24.75	-0.38 1.5
OTC	47.25	29.50	Progress Software Corp (H)	47.13	-4.88 7.3
OTC	22.13	1.94	Quarterdeck Corp. (H)	16.88	-0.63 -3.2
OTC	28.75	11.13	Rainbow Technologies Inc	24.00	-0.75 -3.8
OTC	10.13	2.00	Rastleops	8.38	1.13 51.8
OTC	7.75	3.00	Rose System	8.00	0.50 8.2
OTC	50.00	22.63	Software International Inc. (H)	48.25	-0.75 -1.6
OTC	6.25	2.00	Software Publishing Corp	6.50	0.06 1.0
OTC	12.50	5.25	State of the Art	10.25	1.06 11.6
NYS	47.88	28.13	Sterling Software Inc.	45.63	0.00 0.0
OTC	19.75	4.63	Stratt Dynamics Research (H)	13.25	1.25 6.9
OTC	55.00	19.88	Symantec Inc	33.25	-1.00 -2.9
OTC	33.75	13.25	Symantec Corp. (H)	21.50	-0.60 2.7
OTC	34.50	13.75	SynOpsys (H)	31.06	1.00 3.3
OTC	38.25	10.63	System Software Assoc (H)	35.13	0.50 1.4
OTC	18.13	5.50	Systemsoft Corp	13.00	-0.88 -5.9
OTC	24.00	7.88	Vieveloic Systems	14.25	2.38 10.7
OTC	22.00	10.75	Vmark Software Inc.	18.00	-0.63 -3.3
OTC	8.75	4.63	Walker Interactive Systems	8.13	0.61 8.2
OTC	55.50	15.00	Wall Data Inc.	19.25	0.38 1.3
OTC	19.50	9.13	Waste Laboratories Inc.	17.88	-0.81 -4.4
			Semiconductors		
NYS	39.75	22.25	Advanced Micro Devices	34.00	-0.25 0.7
NYS	39.50	19.63	Analog Devices Inc.	36.63	2.13 -5.8
OTC	36.75	14.25	Atmel Corp	33.00	-0.75 -2.3
OTC	15.88	4.00	Chips and Technologies (H)	14.25	-0.75 -5.0
OTC	60.38	50.50	Cirrus Logic (H)	54.75	-2.75 -4.8
NYS	55.50	15.00	Cypress Semiconductor Corp	38.75	-4.12 -18.1
NYS	24.88	13.38	Dallas Semiconductor	22.13	-1.13 -4.8
OTC	34.25	21.83	Integrated Silicon Systems (H)	30.75	1.88 -5.7
OTC	78.38	28.75	Intel Corp	62.38	3.13 4.8
NYS	57.13	16.00	LSI Logic Corp (H)	51.63	3.50 6.3
OTC	43.00	15.50	Lattice Semiconductor	36.38	0.63 1.7
NYS	94.75	15.25	Micron Technology (H)	87.38	-1.75 -2.0
NYS	80.50	48.00	Motorola Inc. (H)	79.50	-0.50 -0.6
NYS	33.63	14.38	National Semiconductor (H)	29.88	2.75 -8.6
OTC	57.50	23.00	Sierra Semiconductor (H)	31.75	-1.63 3.8
NYS	102.33	12.75	Texas Instruments (L)	78.00	-2.25 -2.9
OTC	37.50	10.25	VLSI Technology (H)	33.88	1.38 3.9
OTC	5.50	1.79	Waferscale	3.50	1.63 41.3
ASE	22.13	13.13	Western Digital Corp	17.38	-3.25 -15.8
OTC	55.50	35.00	Zilog (H)	48.50	2.50 -5.0
OTC	54.13	37.38	Zilog Inc.	35.50	-1.63 -2.5
			Peripherals		
OTC	25.88	14.38	American Power Conversion	20.00	-0.50 -2.6
OTC	67.25	17.25	Adaptec Inc.	41.25	-3.25 -7.3
OTC	27.25	14.75	Banctec Inc.	20.25	0.25 1.3
OTC	13.13	3.38	Cambex Corp	12.00	0.38 3.2
ASE	6.38	1.38	Cognitronics Corp	5.38	0.25 4.9
NYS	36.12	9.06	Conner Peripherals (H)	14.88	1.00 7.2
OTC	19.63	5.88	Creative Technologies Inc.	12.50	1.13 9.9
OTC	13.12	3.50	Data Race Inc	5.81	-0.19 -3.1
ASE	5.38	4.25	Datapoint Corp (H)	8.94	1.19 15.3
NYS	27.38	14.75	EMC Corp	18.88	-1.13 -5.6
NYS	28.50	8.50	Exabyte Corp.	18.00	-1.00 -5.3
OTC	20.00	13.25	Exabyte Software and (H)	18.25	0.13 0.7
OTC	24.00	13.75	Exabyte	14.88	-0.50 3.3
OTC	4.75	3.88	Intelligent Info. Systems	3.00	0.25 9.1
OTC	30.00	2.88	Iomega Corp	24.38	-1.50 -5.7
OTC	7.88	2.00	IPI Systems Inc.	6.25	0.00 0.0
OTC	74.88	22.25	Komag Inc. (H)	71.00	1.75 2.4
OTC	7.75	2.63	Maxtor Corp	5.31	0.13 2.4
OTC	11.50	4.00	Micropolis Corp.	6.50	0.50 8.8
OTC	31.75	8.75	Miniscribe Mfg Co Inc.	29.00	1.06 -3.6
OTC	38.75	10.75	Pinnacle Inc	30.25	-2.00 -6.2
NYS	18.50	4.00	QMS Inc.	5.00	-0.50 -9.1
OTC	38.50	13.75	Quantum Corp	22.13	3.63 -14.1
OTC	33.00	6.75	Radius Inc.	7.88	0.25 3.3
NYS	31.25	6.38	Reclamation Information Inc (H)	20.25	0.75 -4.8
OTC	7.00	0.56	Reno Inc. (L)	0.56	-1.19 -66.7
OTC	42.38	22.88	Seagate Technology	44.50	3.00 -6.7
NYS	35.38	17.88	Storage Technology	25.13	-2.38 -8.6
NYS	53.00	31.38	Tektronix Inc.	33.00	4.50 3.2
NYS	138.38	98.63	Xerox Corp (H)	129.63	8.11 2.5
			Imaging		
OTC	27.25	14.38	American Right Systems (H)	27.88	0.25 0.9
NYS	3.12	0.56	Anacomp Inc.	0.63	0.00 0.0
OTC	31.25	14.75	Analytics Int'l.	30.00	-1.25 -4.0
NYS	69.50	38.75	Auto Data Processing (H)	69.00	0.50 0.7
OTC	58.00	14.00	Cambridge Tech Partners (H)	45.50	-0.50 -1.1
NYS	46.88	23.50	Eastman Corp	45.75	1.38 3.1
NYS	32.50	23.38	Comdisco Inc.	28.88	-1.13 -3.9
OTC	33.75	6.00	Computer Horizons (H)	25.50	1.63 8.2
NYS	63.50	41.88	Computer Sciences (H)	62.63	1.38 2.2
NYS	14.00	1.50	Computer Task Group	13.75	0.88 5.9
NYS	41.38	8.00	CompUSA Inc. (H)	41.38	1.63 4.1
OTC	10.88	5.38	Control Data Systems Inc. (H)	10.81	0.50 5.5
OTC	14.25	8.75	Enhanced Discount Software	11.56	-0.31 -2.6
NYS	47.50	34.75	General Motors E (EDS)	45.88	-1.75 -3.6
OTC	15.75	6.00	Imacon Corp	14.50	2.00 16.0
OTC	18.12	7.50	Intelligent Electronics	9.63	-0.25 -2.5
OTC	11.25	3.88	Meridel	7.00	-0.25 -3.6
OTC	25.00	8.50	Mercantile Inc.	12.25	0.63 5.4
OTC	44.75	25.75	Paychex Inc	44.75	2.25 5.3
NYS	54.25	32.25	Policy Management Sys. (H)	52.50	-0.75 1.4
NYS	36.38	22.25	Reynolds and Reynolds (H)	36.38	1.25 3.6
OTC	24.50	18.75	SEI Corp	23.75	-0.00 0.0
OTC	42.75	23.38	Shared Medical Systems	38.13	1.00 2.6
OTC	8.13	4.00	SPL Systemhouse	7.25	-0.38 -2.5
OTC	26.50	12.00	Software Spectrum Inc.	24.25	0.50 2.1
OTC	31.75	16.73	Sunguard Data Systems	28.75	0.50 1.7

KEY (H) = New Annual High Reached in Period (L) = New Annual Low Reached in Period

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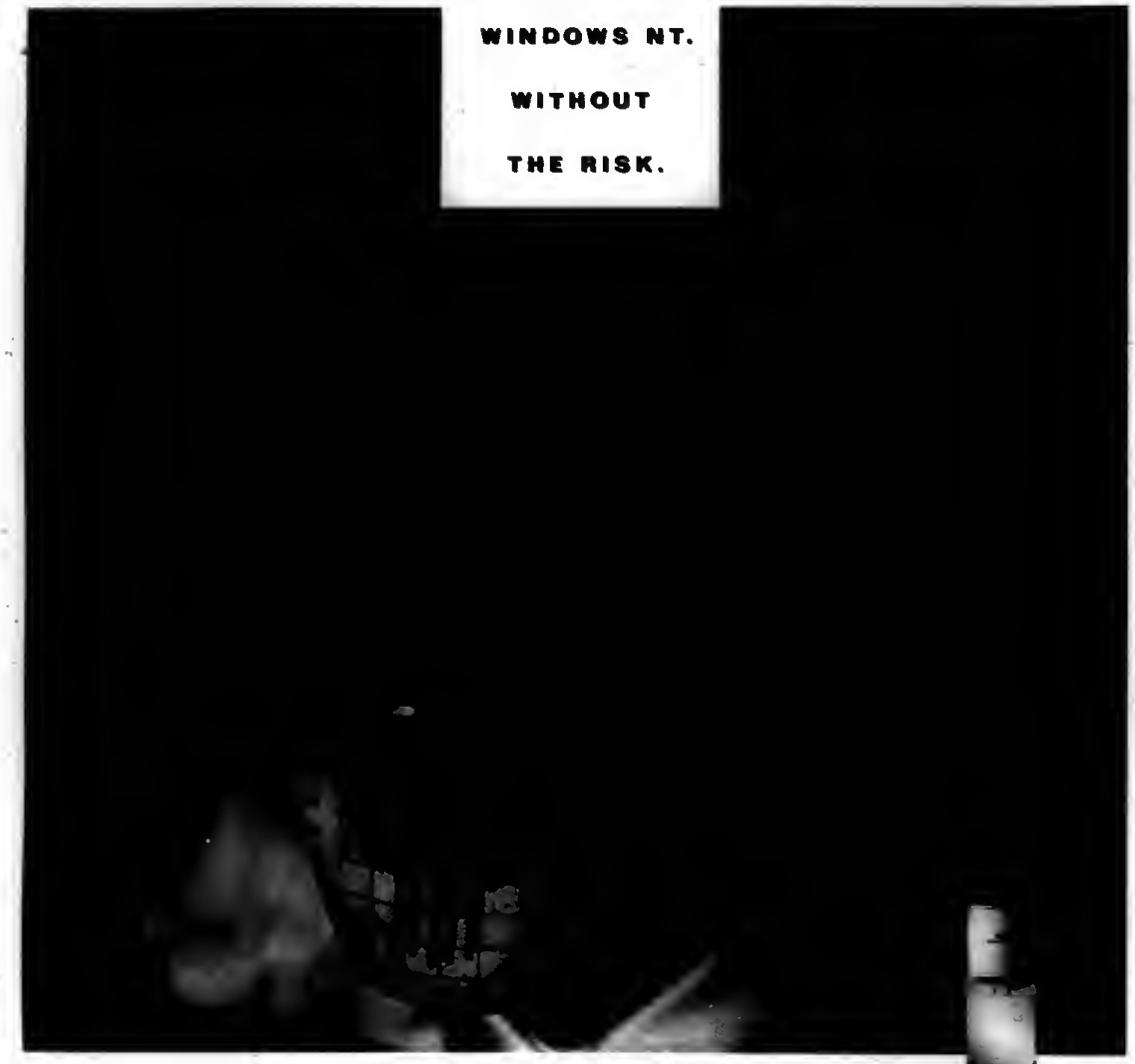

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Novell

CONTINUED FROM PAGE 1

said one user at a large East Coast company who requested anonymity.

"I like the new, refocused Novell, as well as everything I've heard so far about Gemini," said Bernie Kuo, a senior engineer at The Chase Manhattan Bank NA in New York, which has close to 8,000 NetWare 4.1 users worldwide. "I'm especially impressed with the fact that Gemini won't take up any conventional memory on users' workstations. That will make network performance and response time scream."

Novell President and Chief Executive Officer Robert Frankenberg is also expected to use Unix Expo to announce a series of licensing partnerships that could allow Novell to license or sell the rights to Unix (see story at right). That would pave the way for the Provo, Utah-based firm to cease Unix development efforts and concentrate instead on the upcoming Gemini project.

Other highlights of the strategy road map include the following:

- An accelerated delivery schedule for Gemini. Originally slated to ship in 1997, the system will now have some components debut as early as October.
- Plans to introduce a version of the NetWare Directory Service (NDS) that supports Microsoft's Windows NT. NDS is the comprehensive database engine in NetWare 4.x that provides users with a single log-on across the enterprise and easy access to all file servers and corporate resources, regardless of physical location.

"The combination of the strategy and products position Novell as one of three companies, along with Microsoft and Oracle, that will drive enterprise computing"
— Rich Edwards, Robertson & Stephens

Changes afoot

In the past two years, Novell has struggled to get back on track in several areas

Market	Strategy
LAN network operating system	Windows NT is gaining on NetWare, but Novell can capitalize on the upgrades for the 3 million+ networks running NetWare 3.1.
Application server	"SuperNOS" will be redirected to focus on networking; Novell's global networking environment will be open to all servers.
Directory service	Novell is trying to make NDS service the industry standard.

- Details about the availability of its AT&T Corp.'s NetWare Connect Services, which are aimed at letting businesses use NetWare to build their own so-called private Internets for secure business communications.

Rich Edwards, a senior analyst at Robertson, Stephens & Co. in San Francisco, credited Frankenberg with being the architect of Novell's comeback. Edwards said the former Hewlett-Packard Co. executive opted to end the head-to-head confrontation with Microsoft that had been the hallmark of his predecessor, Ray Noorda.

"Novell is rejuvenated. The combination of the strategy and products position Novell as one of three companies, along with Microsoft and Oracle, that will drive enterprise computing," Edwards said.

Lee Doyle, an analyst at International Data Corp. in Framingham, Mass., said one of the best indicators of Novell's newfound sense of purpose is that users are now upgrading in droves. While exact run rates were not available from Novell, Doyle said he expects NetWare 4.1 shipments to surpass NetWare 3.x shipments in October.

Something for nothing

In a move that further underscores Novell's commitment to NDS, the firm last week released a free package of software enhancements to speed users' log-in process and ease management tasks.

The NDS Enhancement Pack is actually a collection of updates and utilities that tweaks the performance of NetWare 4.1. It is available to all NetWare 4.0 users as a software download on the NetWire forum on CompuServe and the Internet's World Wide Web.

"Prior to this, users in large environments found it slow going when several people tried to log in concurrently or locate network objects like printers on the directory tree," said Sandy Stevens, senior product manager for NDS at Novell's Operating Systems Division.

The update is free to current NetWare 4.0 customers via NetWire in NOV LIB 14. The file name is DSENH.exe. It is also available on Novell's Web page at http//www.novell.com.

—*Laura DiDio*

Cisco ships routers

By Bob Wallace

Router market leader Cisco Systems, Inc. last week announced three new routers that provide cheaper and more flexible options for linking small and medium-size sites to corporate LAN internetworks.

The 1004 supports Integrated Services Digital Network (ISDN) lines, which offer more bandwidth than dial-up links. The 1005 uses everything from X.25 to frame-relay lines. The 4700 was designed for use in IBM LAN internets.

Industry analysts said increasingly fierce competition in the remote access market will benefit users as vendors support more features and offer less expensive new products.

Cisco's 1004 and 1005 routers have one Ethernet LAN port, a dedicated console port for local management and an external PCMCIA slot. The 1004 supports one ISDN Basic Rate Interface line, while the 1005 has one synchronous serial port. The former can use both software feature sets based on Cisco's Internetwork Operating System. One set includes IP routing and transparent bridging. The second adds Novell, Inc.'s IPX and Apple Computer, Inc.'s AppleTalk routing and transparent bridging.

Pricing for the 1004 starts at $1,595, while pricing for the 1005 starts at $1,395. Pricing for the 4700 starts at $10,200. All of the routers are shipping now.

Fate of Unix to put Novell in Expo hot seat

By Jean S. Bozman

Novell, Inc. will stand at the center of the Unix storm this week in New York, perhaps ready to answer the question of whether it will license or sell the rights to Unix System V.

The Provo, Utah-based networking vendor acquired Unix in 1993 and then gave away the Unix brand to standards maker X/Open Co. Last week, Novell executives were busy denying rumors that they were arranging for Hewlett-Packard Co. to prepay its royalties on Unix System V source code.

They also declined to comment on whether HP — or a consortium of Unix vendors — would take over stewardship of Unix V source code.

UNIX EXPO
THE OPEN SYSTEMS SHOW

Pulse-taking rate

Unix server sales are zooming at more than 40% a year, and Unix workstations continue double-digit growth. But corporate users want to take its pulse as a new generation of 64-bit machines are scheduled for 1996 and Microsoft ramps up Windows NT sales.

Many companies that license Novell's Unix System 5.4 source code modify it to add special features or tweak performance. But Sun Microsystems, Inc. prepaid its Unix 5.4 source code royalties for $82.5 million last year, and some analysts said HP might follow suit.

Novell executives have said HP is among the vendors supporting the development of 64-bit specifications for Unix interfaces that could be adopted by all Unix vendors [CW, Aug. 21].

A unified Unix for 64-bit chips would allow application developers to write to one standard for all Unix systems rather than to the more than 10 major flavors of Unix from IBM, HP, Digital Equipment Corp., SunSoft, Inc. and others. The unified code base would make Unix a stronger rival of Microsoft Corp.'s Windows NT in luring application developers to write new software for it, according to analysts.

Powerful moves

HP would enjoy distinct advantages in gaining the rights to future Unix development, some users said. HP is now paying Novell royalties for outdated source code for Unix 5.3.2.

"Let's face it, Novell is not a big Unix player," said Doug Eltoft, chairman of the InterWorks Unix workstation forum in the HP Interex user group. "If HP has the source code and some control of it, they can make changes that affect the entire marketplace. That's quite a powerful move, if it happens."

Industry analysts noted that former Novell Chief Executive Officer Ray Noorda had planned to combine Unix enterprise capabilities with NetWare's workgroup strengths in 1993. But UnixWare sales have only begun to top 100,000 copies a year, and Novell paid $350 million for Unix.

"They got Unix, and they didn't know what to do with it," said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Newton, Mass. "They did not execute on their plan."

Other Unix Expo highlights will include the following:

- Demonstration of the Common Desktop Environment unified standard for Unix desktops, which was designed to allow users to mix and match Unix workstations.
- A show-floor network that links Unix and Windows NT servers and the announcement of the SoftWindows 2.0 Windows-on-Unix desktop from Insignia Solutions, Inc. in Mountain View, Calif.

Parallel processors begin to pick up slack

The day is rapidly approaching when massively parallel processors (MPP) will take on more of our daily computing burden. The largest computers will be built out of the least expensive components, and the price per MIPS will be embarrassingly lower than what is available today.

Granted, we still have a long way to go. The lack of any standard means for interprocess communications within a parallel processor remains a rich area of inquiry. The need for specialized software, the difficulty of managing large parallel systems and the shortage of skills are all keeping the price of parallel computing higher than the alternatives, and they will do so for the foreseeable future.

But the Department of Energy's recent award of a $46 million contract to Intel Corp. signals that the day isn't too distant when parallel computing will lighten system costs.

Intel has been commissioned to jointly develop with Sandia National Laboratory a parallel processor that crashes through the hitherto unreachable teraflop barrier. Intel says it can build a parallel processor capable of 1.8 teraflops, or 1.8 trillion floating-point operations per second.

The claim is surprising only because Intel has invested heavily in parallel processing for several years but hasn't achieved anything like the high profile of a Cray Research, Inc. In the past, the contract Intel has won with Sandia — for analysis of existing nuclear weapons — might have been awarded to Cray Research with its custom-designed, proprietary CPUs.

Instead, Intel has earned a vote of confidence in its ability to scale up a microprocessor-based design. Intel has sold roughly 400 units of its Paragon parallel processor, based on its i860 chip. The processor originally was developed as a workhorse for high-speed graphics.

Setting precedent

Intel's goal of 1.8 teraflops dwarfs all supercomputer building that has gone before it. The current record of 281 GFLOPS, or 281 billion floating-point operations per second, was set on an Intel Paragon XP/S. Actually, it was set on two Paragons that happened to be constructed at the same time and were linked last December at Intel's Scalable Systems Division in Beaverton, Ore.

Those two machines had a total 6,768 processors (pre-Pentium i860s), although only 2,256 were actually doing compute calculations. Given where Intel is coming from, the solution to MPP design problems is to throw processors at them. It supports the calculating nodes with more microprocessors to speed interprocess communications, end-user interfacing or I/O.

The move from 281 GFLOPS to 1,800 GFLOPS, or 1.8 teraflops, will require more than 9,000 microprocessors. Although Intel representatives are confident of reaching that goal, Sandia scientists have likened the difference to that between a round trip from New York to Boston vs. one from Earth to the moon.

> The day is not too distant when parallel computing will lighten system costs.
>
> Charles Babcock

In the past, when a huge number of processors were wired into one Thinking Machines' Connection machine, throughput sank as the built-in overhead of interprocess communications and I/O scaled up to similar gigantic proportions. In early models, an MPP seldom achieved more than 3% or 4% of its potential processing power as sustained output.

Intel's Scalable Systems Division will build the processor to be used at Sandia out of P6s, the follow-on to today's Pentium. Internal communications between processors are handled over a two-dimensional mesh with router chips.

The routers use a "worm hole" algorithm of passing a message horizontally as far as it can go, then vertically to connect to the right node.

In the Paragon, this results in messages' reaching their destinations within 40 nanoseconds.

Sandia in Albuquerque, N.M., has expertise in parallel software. Its Sunmos parallel version of Unix is regarded as more memory efficient than Intel's, although neither party indicated which operating system would be used on the new machine.

But the architecture problems will continue to be worked out in massively parallel designs, and a future of multipurpose, superpowerful machines is just beyond the horizon.

Babcock is *Computerworld*'s technical editor. His Internet address is charles_babcock@cw.com.

Inside Lines

Radius sees red; workers see pink

The bloodletting began last week as Radius, Inc. confirmed that it will cut more than 20% of its workforce — 90 of its 430 workers worldwide. The once high-flying company is struggling to align its rising operating costs with declining margins and profits. The layoffs come just three weeks after Radius told Wall Street that earnings for its fiscal fourth quarter, ending Sept. 30, will fall far short of expectations. The $350 million Sunnyvale, Calif.-based Macintosh clone maker has been in the red for four out of the past five quarters [CW, Sept. 4].

Shop 'til your network kicks you off

QVC, every TV hostage's favorite home shopping network, will this month announce plans to make its entire inventory of faux ruby rings, polyester maternity dresses and, yes, computer products, available over The Microsoft Network on-line service, according to an industry source. QVC and Microsoft are no strangers. The retailer hawked early copies of Windows 95 last month over its Home Shopping Channel.

Tiers that bind

Trying to make its MQSeries messaging middleware less frightening to users outside the data center, IBM next week will introduce a jazzed-up version targeted at three-tier client/server applications. MQSeries Three Tier provides links to GUI development tools such as IBM's VisualAge, and it also adds compilers, testing tools and zippier program-triggering routines to the product. IBM's Web home page last week posted a customer announcement letter about MQSeries Three Tier, which will ship in late October on the company's OS/2 and AIX operating systems.

Surfin' safari

Lost on the Internet and can't get home? Yahoo, an Internet search engine — and one of the most-visited sites on the World Wide Web — is hoping to ease that anxious, confused feeling this week. It plans to announce a deal with Toronto-based Open Text Corp. to add full-text search capabilities to Yahoo at http://www.yahoo.com, sources close to the deal said.

Looking for a job?

AT&T Interchange, the content group of AT&T's bureaucratic, three-unit Internet division, is expected this week to announce a string of deals with publishing and entertainment companies that have promised to create text, audio, video and pictures for AT&T's on-line system. And Cambridge, Mass.-based Interchange is looking for a slew of software developers to join the effort.

Moving to the head of the line

Unisys wants to be one of the first companies on the P6 bandwagon when the next-generation Intel chip ships late this year. Unisys' Pentium-based parallel processing Opus server can be upgraded to P6 in about two weeks, Chief Technology Officer Ron Bell said last week, although he wouldn't commit to actually shipping a P6 server in that time frame.

Politically correct. Cabletron Systems will attempt to shed its sexist label at the Networld/Interop trade show in Atlanta next week by staffing its booth with male models. This is a sharp departure from years past, when Cabletron raised the ire of women professionals in the networking industry by prominently featuring scantily clad females strolling through its booth. "We've had a lot of requests from women in the industry to put men in our booth, and we're just obliging them," said a Cabletron spokesman. Oblige us by emailing your tips and tidbits to news editor Maryfran Johnson at maryfran_johnson@cw.com or call Computerworld*'s tip line at (508) 820-8555 or (800) 343-6474.*

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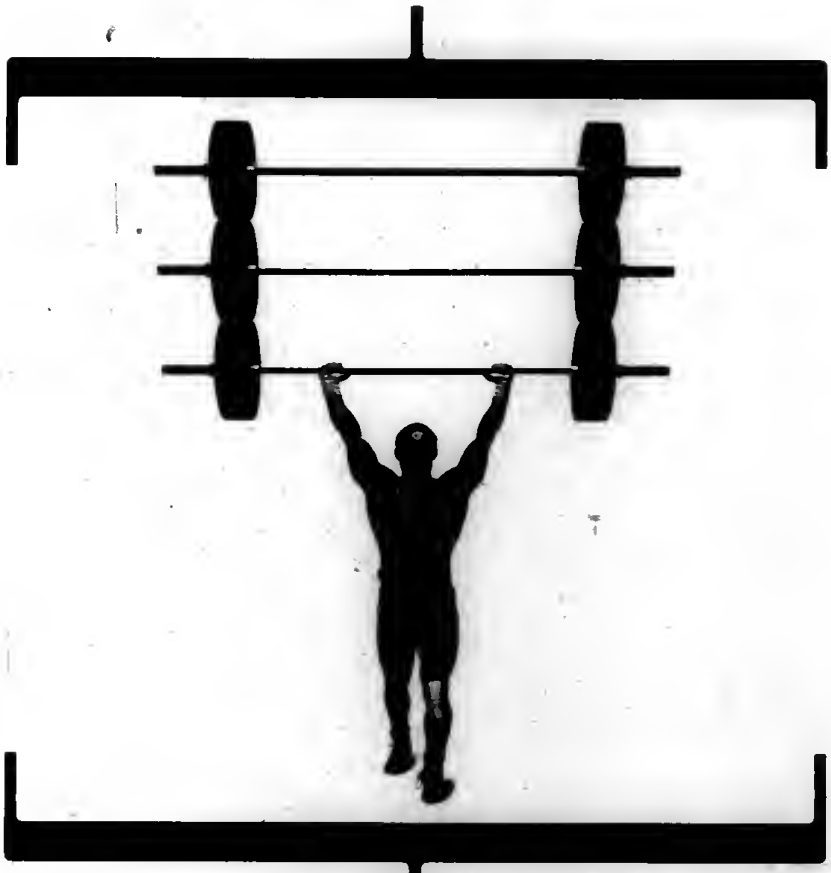

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